Amateur Radio

Volume 80
Number 11
November 2012
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WIRELESS INSTITUTE OF AUSTRALIA

- RD Contest Results
- Build an FT-817 accessory box
- Does the OCF dipole work?

Vale Michael Owen VK3KI SK

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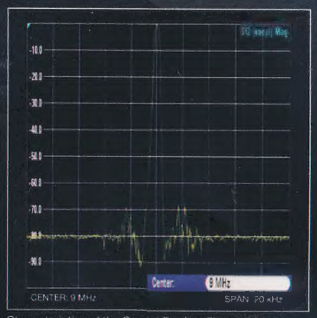

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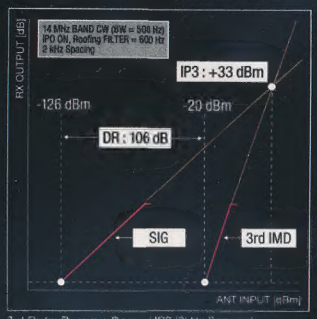

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Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications committee
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or *armag@wia.org.au*

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or *editor@wia.org.au*

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or *admanager@wia.org.au*

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

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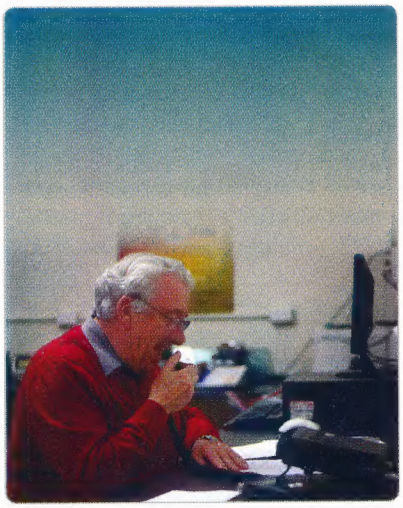

This month's cover
Michael Owen VK3KI in contact with ARRL President Kay Craigie N3KN during the last QSO using the VK100WIA special callsign in 2010. Photo by Robert Broomhead VK3DN.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Registered Office of the WIA
Andersson House
Unit 20, 11-13 Havelock Road
Bayswater, Victoria, 3153
Tel: (03) 9729 0400 Fax (03) 9729 7325
email: *nationaloffice@wia.org.au*
http://www.wia.org.au

All mail to
PO Box 2042 BAYSWATER VIC 3153
Business hours: 10am – 4pm weekdays

National Office staff

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Administration Officer	Margaret Williams	
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Editorial

Peter Freeman VK3PF

Vale Michael Owen VK3KI

It is with great sadness that we note the recent passing of Michael Owen VK3KI.

Most readers would be aware of the work done by Michael on the local amateur scene. In my view, Michael has been a key influence in our hobby over the past 10 years. Prior to that time, I was not really aware of his roles, but have been educated by reading the many tributes that have been published on the web. It is clear that Michael also performed important roles at the international level.

It was the action of Michael Owen that resulted in me being approached to become Editor about seven years ago. Once I accepted the position, the Publications Committee and I have received full support from Michael. He was a regular attendee at our Publications Committee meetings and would freely share his thoughts and offer guidance. Above all, he allowed us to make our own decisions. Of course, his guidance occasionally caused minor changes in direction, but all members of the committee were happy with all decisions reached.

On behalf of the Publications Committee, I publicly extend our condolences to Nanette and family.

I will be endeavouring to source appropriate material for a tribute to Michael for publication in the next issue of *Amateur Radio*. We have a brief tribute this month, within the President's Comment. We have also published a number of photographs of Michael on the Inside Back Cover of this issue.

2013 Callbook

The *Callbook* is currently in the final stages of production, running a little behind schedule. It should be available shortly, if not yet in stock at the WIA Bookshop. Readers are reminded that the 2013 edition will include all issues of *AR* from 2011 in electronic format at no extra charge. It will also include the NZART Callbook in electronic format.

The *Callbook* Editor has advised that he will not be available to continue this role in 2013. The Publications Committee is therefore seeking expressions of interest from anyone who may be interested in taking up this volunteer task. The main role of the *Callbook* Editor is to source appropriate material and updates of content for inclusion in the *Callbook*, including suitable images for the cover. Feel free to contact me in the first instance if you are interested in the role.

A flurry of SOTA activity

Some readers will be aware of the Summits On The Air (SOTA) program, which started some 10 years ago in the UK. SOTA finally started in Australia in February this year, with the Victorian association becoming live on the SOTA system. The South Australia association was approved by the SOTA Management Team (MT) and became live on 1 October. The ACT association is close to having all of its paperwork approved and it is anticipated that VK1 will become live in the near future. Interest has also been expressed in VK2, VK6 and VK7, with a small group of amateurs in VK2 working to identify qualifying peaks in their local region as part of the overall task of documentation required by the MT.

Continued on page 5

WIA comment

Phil Wait VK2ASD

It seems rather surreal writing this President's Comment because I never expected to be in this position, but in accordance with the WIA Constitution, and following the tragic and unexpected loss of Michael Owen VK3KI, here I am, with Chris Platt VK5CP as Vice-President.

I think we can all be certain that there will never be another Michael Owen. His dedication to amateur radio, like most things in Michael's life, is legendary. Michael, along with the late Chris Jones VK2ZDD, devised a new structure for the WIA early last decade which fundamentally changed the organisation from a Federal Structure with indirect grass-roots membership through State Divisions to a more effective National Structure with direct membership and affiliated local clubs.

One of the prime roles of the WIA as the peak body representing Australian radio amateurs is to liaise and negotiate with the regulatory authority, the ACMA. This Michael did masterfully. Bringing all the skills of an experienced corporate lawyer, Michael negotiated the introduction of a new Licence Conditions Determination (LCD), reducing the number of licence grades from five to two, abolishing the Morse code requirement, and removing some restrictions relating to 3rd party traffic and emergency operation.

I have never seen anybody work a room quite like Michael, one way or another managing to get everyone to agree with him, akin to getting six cats into a bucket of water. That's pretty much how I became a Director of the WIA and later Vice-President, and how many people became WIA members at field days - we all simply gave-in to overwhelming persuasion!

Michael also championed the development of the WIA's Examination and Callsign Management Service and the introduction of the Foundation licence, a move which encouraged many new entrants into the hobby, many of them young, and bolstered the numbers of Australian radio amateurs while in other countries numbers were declining.

Amateur radio societies around the world also benefited from Michael's enthusiasm and experience. Michael was passionately involved in the IARU since his early days which trace back to the 1960s.

Internationally, he is perhaps best remembered for his work on Article 25 at WRC-03 where a package of revisions to the International Radio Regulations were introduced that are specific to the Amateur and Amateur-Satellite Services.

In the words of IARU President Tim Ellam, VE6SH:

I was only speaking to him a few days ago and he was very enthused about leading the IARU Region 3 Conference in Ho Chi Minh City in a few weeks. Michael was a good friend and mentor to many of us in IARU. His drafting skills were second to none, and his ability to clearly articulate his position on a number of issues was of immeasurable help to us. The IARU is indebted to his work at WRCs and at many regional Asia Pacific Telecommunications (APT) meetings.

ARRL Chief Executive Officer David Sumner, K1ZZ, recalled first meeting Michael Owen 36 years ago:

IARU President Noel Eaton VE3CJ had called the first-ever meeting of representatives from all three IARU regions to coordinate global preparations for the 1979 World Administrative Radio Conference. WARC-79 is memorable primarily because it's where the Amateur Radio Service gained the bands at 10, 18 and 24 MHz, among other things.

Michael came to that meeting in Florida in April 1976 as a Director of what was then called the IARU Region 3 Association, which had been formed just a few years earlier to bring together the IARU Member-Societies of the Asia-Pacific region...

Among the assignments that Michael drew at WARC-79 was to draft a resolution to exempt the Amateur-Satellite Service from coordination procedures that otherwise would have bogged us down in endless paperwork and great expense. As an attorney it was just the sort of thing he was good at. His work has stood the test of time, and it remains in effect to this day.

Michael then went on to serve as Vice President of the IARU from 1989 – 1999 while he was living in London, President of the WIA from 2003, and as Chairman of IARU Region 3 since 2006.

Continued on page 4

WIA news

New WIA President and Vice-President appointed

The WIA Board of Directors held an emergency meeting following the sudden and unexpected passing of WIA President Michael Owen VK3KI. Phil Wait VK2ASD was formally appointed WIA President and Chris Platt VK5CP was appointed Vice-President.

Both Phil and Chris have strong interests in progressing amateur radio and also have a wide variety of other experience and interests outside amateur radio circles.

Phil Wait has been a radio amateur since 1967 and a Director of the WIA since its restructuring in 2003. Phil owned VitalCall Medical Alarm Systems for many years, and more recently FirstCall Medical Alarms, and is also involved in sailing and constructing valve (yes - valve!) audio equipment. Phil is probably best known in amateur radio circles for the WIA's advocacy role in relation to Broadband Power Line Interference (BPL).

Chris Platt is a lawyer with over 20 years' experience in industrial relations in the agricultural and resource sectors and currently works for BHP Billiton supporting the Olympic Dam resource. Chris has experience in international labour relations having represented Australia at a number on International Labour Organisation meetings. Chris has an interest in HF DXing, contesting and high altitude balloons with AREG.

The vacancy created on the WIA Board can either be filled by appointment, or left vacant until the next AGM in May 2013.

LTE trial in Bendigo ends

The ACMA has advised the WIA that the 700 MHz LTE trial in the Bendigo region has now ended. In effect this means that Advanced amateur licence holders that were within the exclusion zone can now apply to the ACMA for a variation to their existing licences to operate up to one kW on the primary HF bands during the trial period. More information on how to apply can be found on the WIA website.

The 700 MHz LTE trial in the Perth area is still continuing where an exclusion zone for High Power HF operation is in place. Details of the exclusion zone can also be found on the WIA web site.

EMR Calculator now on the WIA website

Doug McArthur VK3UM, a well-known Earth/Moon experimenter, has generously allowed the WIA to place his popular EMR assessment calculator on our website. The Calculator allows assessment of safe zones in the HF, VHF, UHF and microwave amateur bands for a variety of antenna situations, and covers a number of EMR Standards including the Australian Standard for EMR. The latest version of the Calculator can be downloaded from our website.

Doug VK3UM's website is *www.vk3um.com*

WIA comment

Continued from page 3

Dave Sumner sums it up well:

Michael Owen was a strategic thinker; he saw past short-term pros and cons and could envision how decisions made today would affect the distant future. He also understood that working in the background – doing one's homework – was essential to success. There is simply no way to replace someone with Michael's experience and wisdom. His death is a searing loss for both the IARU and the WIA, but both organizations are stronger today because of the enormous contributions he made to their well-being.

So, although I'm experienced with complex organisations, you can see why I'm feeling a little apprehensive. Michael was a good friend and a tireless worker for amateur radio and impossible to emulate.

In many ways this is a watershed moment for amateur radio in Australia. Clearly there are significant challenges ahead, some related to Michael's passing, some not, and we need to think about how the WIA should progress in the post-Owen era.

Some things, like our relationship with ACMA and our advocacy work, are strong and robust; others like our communication with clubs and individual members, our need to rein-in escalating costs, and our urgent need to lower the work-load on a few volunteers are all things we need to consider over the coming months.

As such, I would particularly like to use this President's Comment space to address some of those issues in future editions of *AR*, and solicit your responses.

On behalf of the Board and all WIA members, at the reception following Michael's funeral I expressed our deepest condolences to Michael's family and friends. Over the next few months the Board of the WIA will be considering how we can best remember the legacy of Michael J. Owen.

Editorial

Continued from page 2

The rules of SOTA require that a peak must be officially listed with SOTA before a peak will earn the activation points for the summit. Peaks are given a points value based on the summit height above sea level, using bands of heights – broadly, the higher the peak, the higher the points, to a maximum of 10 points. An activator must work at least four different stations to qualify for the summit points, but each contact (chaser) only needs a single contact with an activator to gain the points.

We have seen lots of behind the scenes activity over the past month or two as the teams have worked on preparing the documentation to establish SOTA associations in some states. The generally improving weather in Victoria has also seen an increase in activation attempts. This flurry of activation activity has not simply been due to the improving weather – several activators have been attempting to activate high points value summits before the end of the winter bonus on 14 October. For peaks with points value of 8 or 10 points, an activator gains a seasonal bonus of three points if the activation occurs during the period 15 June to 14 October for the VK3 association.

At the time of preparing this Editorial, three amateurs in VK3 have gained over 100 points – the first level of the awards scheme, which means that the activator can apply for a certificate. The first main award is the Mountain Goat Award, which needs 1000 points from summits activated. Wayne VK3WAM is currently leading the charge for activators. He has just achieved the 250 point certificate level.

Chasers can also accumulate points towards the SOTA awards. The recognition levels are 100, 250, 500 points. Once a chaser reaches 1000 points, they qualify for the Shack Sloth Award. In Europe, some chasers have very high totals – the top chaser has over 69000 points! Having been active as a chaser for 10 years helps, I am sure.

Good luck to those working on the documentation to establish new associations. For everyone else, you can help by listening out and working the activators, who must make the final ascent to the summit activation zone by non-motorised means, carrying their radio gear with them. This requirement means that most operations are QRP. Personally, I feel much more satisfied if I have several stations in the log after climbing a summit, rather than just the minimum of four to qualify the summit!

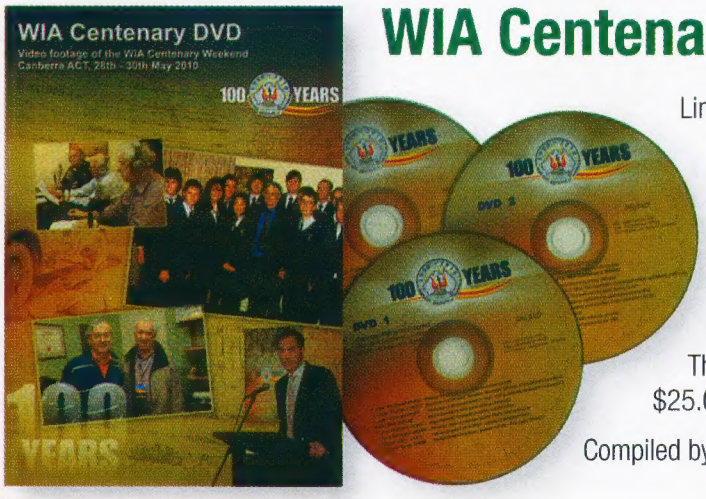
For those interested, simply search for SOTA using your favourite search engine. There is an Australia SOTA group on Yahoo groups, plus a large amount of information available from the parent SOTA organisation at *http://www.sota.org.uk/*

I will attempt to organise a more detailed article on SOTA for a future issue. My understanding is that SOTA has some parallels with IOTA, which has a strong following. It is another challenge for amateurs. In my case, it forms a stimulus to be more active both physically and on radio, combined with being in the great outdoors.

Hopefully I can work you from a summit in the near future.

Cheers,

Peter VK3PF



WIA Centenary DVD

Limited numbers of the **WIA Centenary DVD** are now available for purchase. This professionally recorded and produced three DVD boxed set includes footage from the Historic Presentations, Centenary Dinner, live VK100WIA news broadcast, plus Sundays visit to Dick Smith's property.

The boxed set of three DVDs is available for just $25.00 plus postage.

Compiled by Ralph VK3LL, Jack VK3WWW and Robert VK3DN.

WA wheatbelt and regional expansion projects

Craig Lamb VK6FLAM

In the early hours of 20 November 2011, a party from WARG, the West Australian Amateur Repeater Group, hit the road from Perth and headed east towards the wheatbelt town of Kellerberrin, 200 km toward Kalgoorlie on the Great Eastern Highway. The party, led by WARG Technical Officer Craig VK6FLAM included WARG President Heath VK6TWO, WARG Treasurer and Membership Manager Monique VK6FMON and WARG Committee Councillor Martin VK6ZMS. Craig, Heath and Martin also make up the WA Advisory Committee for the WIA.

Local amateurs in Kellerberrin Peter VK6FUN and Bruce VK6LAW had lobbied the local council and were granted permission to use the council's 40 metre mast at Kellerberrin Hill on the outskirts of town to host a two metre voice repeater and APRS Digipeater to further cover the Great Eastern Highway between Cunderdin and Merredin.

The 2 metre repeater consists of two Phillips PRM80 mobile units through an NHRC4 controller coupled to a Diamond X-30 antenna mounted at the 40 metre level. The X-30 dual band was installed to accommodate UHF linking in the future. The APRS Digipeater consists of an AWA M8 mobile radio coupled to an Argent OT2m TNC and sent out through a Diamond F-23 antenna mounted at the 12 metre level.

Everyone on the day pitched in and the whole project was completed in four hours. Craig VK6FLAM said he had the best job working aloft away from the ever present cloud of flies that assisted in introducing a new version of 'The Great Australian Wave'...two hands!

Photo 1: The two metre antenna installation in progress.

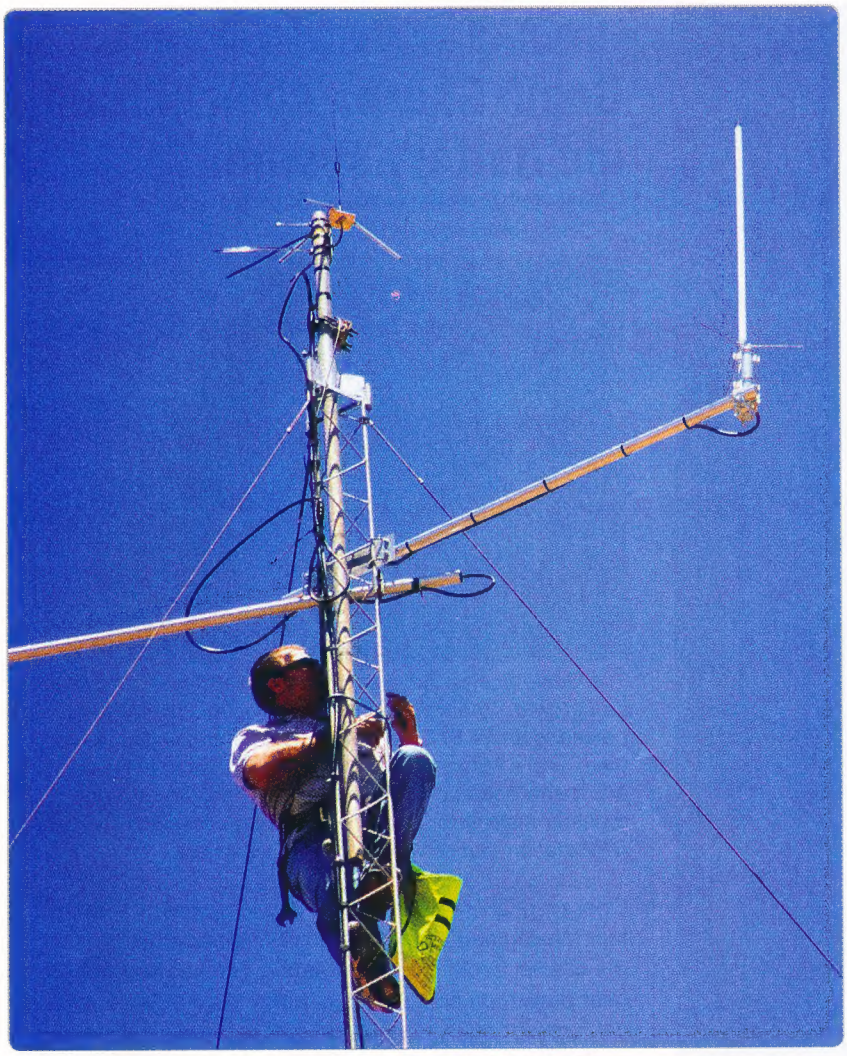


Photo 2: The completed two metre antenna installation.

Thanks to Jenny, XYL to Peter VK6FUN, for the ever ready supply of refreshment's for everyone to indulge at their leisure.

VK6RKN 147.325+ and VK6RKN-3 145.175 were commissioned by locals VK6FUN Peter and VK6LAW Bruce at 0500Z that day.

Whilst on site, the team replaced the local UHF CBRS repeater antenna that had taken a lightning hit. With summer on the way, the community repeater is used extensively during times of bushfires and other local emergencies that arise. The team put together a temporary antenna on site by dismantling one of the members' vehicle installations to get the repeater working whilst a high gain replacement is sourced.

The WARG Expansion Project team have a number of items on their agenda within regional WA which will be keeping them busy well into 2012. The APRS and two metre coverage project for the Perth to Geraldton sector is progressing with propagation testing underway. Working with the Mid West Amateur Radio Group, the team hope to have infrastructure in place by the end of 2012.

Photo 3: The two metre repeater, controller, APRS digipeater and power supply.

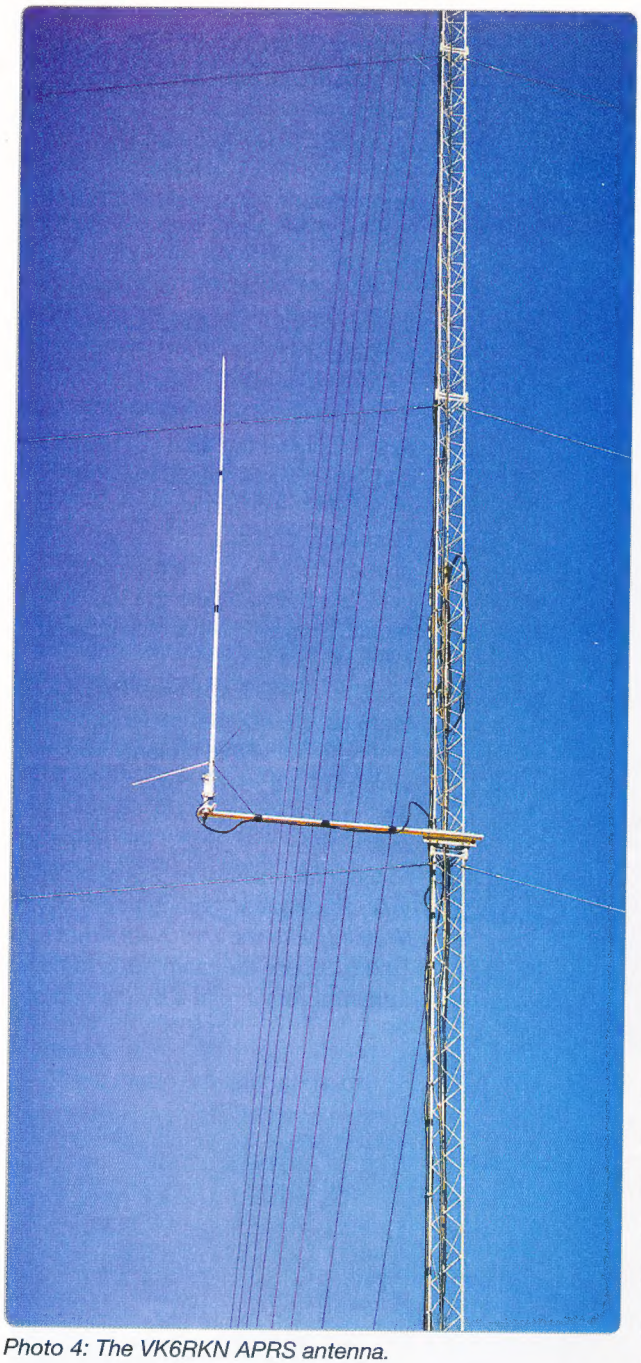


Photo 4: The VK6RKN APRS antenna.

Towards the south, and talks with the Great Southern Electronics Group will see APRS coverage increased throughout the southwest of WA. Turning back towards the east, new contacts out at Kalgoorlie will make the expansion east of Merredin a whole lot easier. Local input from regional amateurs into the Expansion Projects is encouraged and required to ensure a favourable outcome.

Product Review:

Goal0 Sherpa solar/lithium ion battery system

Stephen Warrillow VK3SN

The Goal0 Sherpa Adventure Kit (50 Watt-Hours lithium ion battery with 13.5 watt mono-crystalline folding solar panel)) powering an FT-817 in the field. The antenna attached to the rear is a Miracle Whip by Miracle Antenna, tuned for two metre operation. The battery and radio are strapped together making for a sturdy and highly compact ultra-light QRP station that can literally travel anywhere.

Operating QRP portable in remote locations is a lot of fun. Making amazing contacts from places that are 'off the beaten track' is very rewarding, but keeping the gear powered and still light enough to be truly portable can present quite a challenge. I have been using small sealed lead-acid batteries (SLA) and roll-up solar panels for many years and they work pretty well. The major drawback with this approach is the mass of the batteries, which remains considerable. Such considerations are especially important during multi-day bush walks or cross-country ski trips where self-reliance is crucial and every gram counts. One obvious solution would be to use better battery technology, such as lithium ion, but these are much more finicky to charge and have thus far proven difficult to readily adapt for amateur use.

I recently became aware of some new options manufactured by Goal0. They have designed a range of lightweight high output folding solar panels matched with lithium ion battery packs purpose built for use in tough environments. The Goal0 systems are modular, so that panels and batteries can be 'daisy-chained' in groups for greater capacity. There are also various accessories such as wall chargers, mini-inverters for 220 V and LED lighting systems that can be worked in to the system. All of these are small enough to carry on extended hikes. With internal regulation, charging indicators, replaceable fuse, USB outlet and weatherproof cables, the systems are easy to use and very robust.

I have used the Sherpa 50 system on several recent trips where it has charged handhelds and powered an FT-817 as well as charging phones, MP3 players etc. By my rough calculations, the lithium-ion battery has about 50% greater capacity than an SLA battery of the same mass. Since trying the system in the field, I have been impressed enough to purchase other accessories which have all proven very effective. I have also sourced the necessary plugs and made up various adaptors, which allow me to integrate my existing roll-up solar panels into the system.

Overall I can highly recommend the Goal0 solar and lithium ion battery systems to amateurs keen to operate for long periods remote from other power sources. While the gear is certainly not cheap (nearly $500 for the Sherpa kit), the design and quality of each component is close to perfect. For more information, check out their Australian website: *www.goalzero.com.au/*

Technical specifications – from the Goal0 website	
SHERPA 50 Battery	
Input Sources:	
AC wall charger	45 watts (15.3 V: 3 A)
DC 12 V	120 watts (12 V: 10 A)
DC solar panels	Depends on solar panels
Output Port:	
USB	2.5 watts (5 V: 0.5 A)
DC 12 V barrel	120 watts (12 V: 10 A)
AC inverter	100 watts (220 V: 0.9 A)
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Internal Battery:	
Battery type	Lithium-Iron Phosphate (LiFe)
Battery capacity	50 watt hours (12 V: 4.2 A)
Battery voltage	12 Vdc (nominal)
Temp. controller	Shuts down input port if temp. is >50°C
Life cycles	2,000-3,000 (5+ years)
Shelf life	6 months ± (stored <21°C)
General:	
Mass	0.99 kg
Dimensions	21.5 x 15 x 4 (cm)
Charging Times:	
From AC wall charger	2 hours
From Nomad 13.5 (sunny)	9 hours
Operating Temperatures:	
Optimal operating	30° - 40°C
Optimal storage	0° - 30°C
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Input Sources:	13.5 watt Mono-crystalline solar panel
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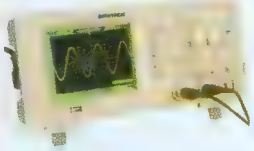

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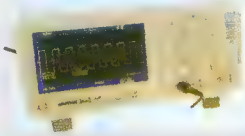

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The 'Porta 40' – a direct conversion receiver for portable use

Peter Parker VK3YE

Introduction

Occasionally you haven't the time to transmit but still wish to snoop the bands. Examples are day trips, picnics, waiting for people or in the house. Or you might be looking for a no-frills but effective beginner or second receiver project.

Either way the direct conversion set presented here is worth attention. It is small, cheap and simple. After the day it takes to build you will be hearing local and DX signals on 40 and 20 metres. All parts are commercially available and there is no painstaking alignment required.

Circuit description

Incoming signals pass a tuned circuit before being amplified.

The local oscillator comprises a 7.2 MHz ceramic resonator pulled to cover most of the band. A buffer amplifier increases its level. A diode double balanced mixer mixes the incoming signal with the local signal to produce a weak audio difference signal. A BC548 and LM386 audio strip boost this to speaker volume.

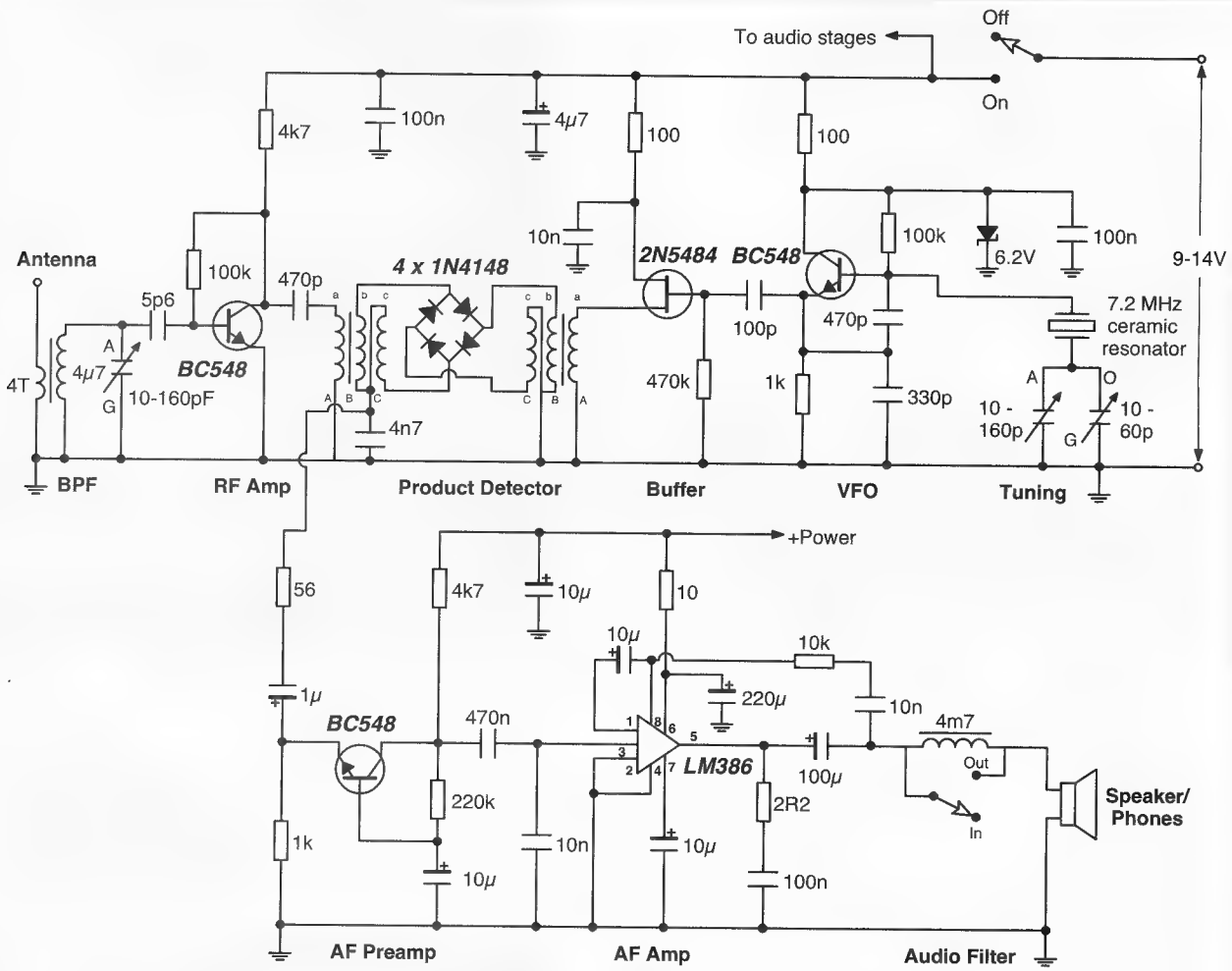

Figure 1: Schematic.

It is worth mentioning a few design features:

The diode balanced mixer provides better strong signal performance than the sometimes expensive NE602 common in simple receivers. Its parts are also easier to find.

Band selection is simply by tuning the front end to the desired frequency. The resonant tuned circuit is formed by a transistor radio tuning capacitor and a 4.7 μH RF choke. Sensitivity is less on 20 metres (as you are relying on an oscillator harmonic) but Europeans have still been heard well.

Switched fixed capacitances of 100 pF for 40 metres and 25 pF for 20 metres could be used instead of the variable capacitor. However the variable offers more precise peaking (it varies slightly for different antennas) and doubles as a volume control (detune for loud signals).

For simplicity I avoided an active low pass audio filter. Some older designs used passive pi filters with large inductors in the early high impedance part of the audio chain. The coils needed (in the tens of millihenries) are unobtainably large. Instead I filtered the low impedance speaker audio with a series inductor. The 4.7 mH used provides useful switchable top-cut for a low price.

Photo 1: Front of set.

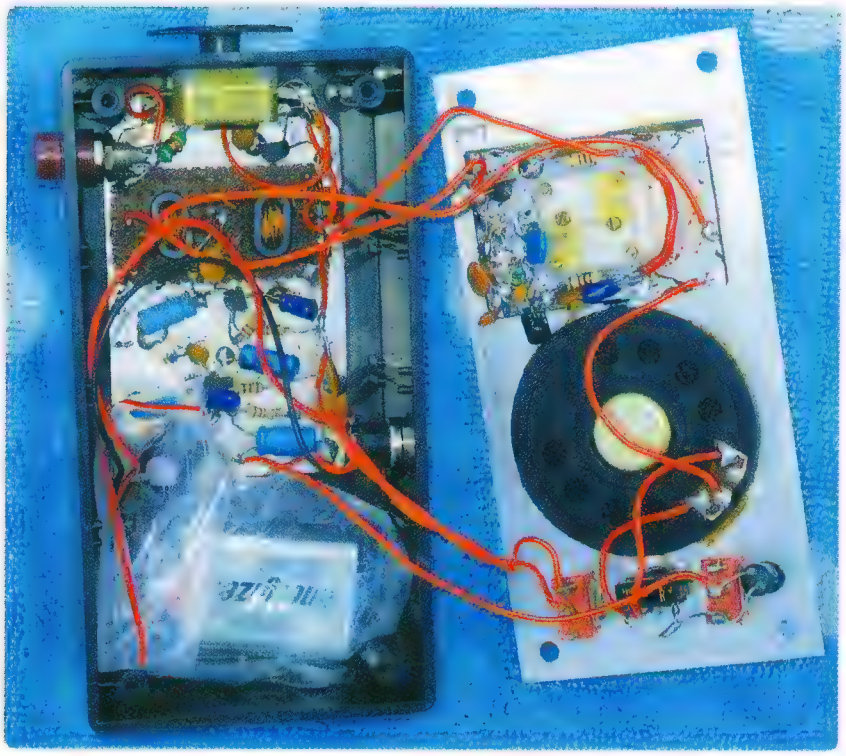

Photo 2: Inside of set.

A wire antenna at least 10 metres long is suggested for good performance. It can be thrown over low bushes but height is beneficial. If using a short telescopic whip you will need another RF preamp (not tried). The main trade-off here is that it lessens strong signal performance with a home antenna and you may need an RF gain control.

Obtaining parts

All but one of the components should be obtainable from Jaycar, Altronics or similar. The exception is the 7.2 MHz ceramic resonator which came from Rockby. Resonator alternatives include a free-running oscillator or two 7.159 MHz crystals in parallel. The latter provides a smaller pulling range but should still cover the VK2WI broadcast on 7.146 MHz if a series coil is added.

Scavenge parts to reduce costs. Big savings can come from a salvaged case, sockets, speaker and tuning capacitors. The balanced mixer cost cents if old TV balun cores and transformer wire are used. Extract resistors and capacitors from old radio, TV, video or computer circuit boards. To save space I usually discard the case and keep scrap boards in storage cubes, only desoldering parts when needed. Although do not overlook the usefulness of the metal in VCR covers for boxes and shielding.

Construction

Everything apart from switches and sockets were mounted on two pieces of unetched circuit board material. One for the local oscillator/buffer, and the other for the rest. The two boards fit into a plastic jiffy box with the metal lid forming the front panel. Leave room for an internal speaker and nine volt battery. Add an external 12 volt socket as gain is more with the higher voltage.

Oscillator

Assemble the oscillator and buffer board first. A hole in the middle of the board passes the tuning capacitor's shaft. All parts are soldered around the back of the tuning capacitor, with the copper used as a ground plane, to minimise lead lengths. Link both sections of the tuning capacitor by bridging the two outer pins to provide adequate low-end coverage. Its rear trimmers affect top end coverage.

Oscillator testing is simple but needs a relative RF indicator (a germanium signal diode and RF choke wired on the back of a sensitive meter movement will do) and/or a 7 MHz receiver. Applying power to the oscillator and buffer should be rewarded by an RF signal that can be found on the receiver. Adjust the tuning and note the range; 7040 to at least 7200 kHz is satisfactory and covers 90% of SSB activity. Change the value of the 330 and/or 470 pF capacitors to alter the range slightly if desired. A small RF choke of a few microhenries in series with the resonator can extend coverage down to 7000 kHz if desired.

Audio stages

Start construction at the speaker end and work back. To lessen the chance of errors connect directly to the headphones, leaving out the audio filter choke and speaker/headphone switching for now.

The LM386 stage is straightforward, but avoid shorting the pins. If game you can solder direct to the chip instead of using a socket. The even more brazen mount the IC with its top against the board and bend pins 2 and 4 90 degrees to contact the circuit board material. It is a good idea to tin both these pins and the board with solder – this allows a fast joint without risk of overheating the IC. Blank matrix board is also OK but needs stand-offs to securely mount. If the amplifier is working there will be a click or hum in the headphones when you place a screwdriver on Pin 3.

The BC548 stage is next. It is very simple but note the audio input is applied via the emitter, not the base, unlike most amplifier circuits. Again touching the emitter should provide a click or a hum.

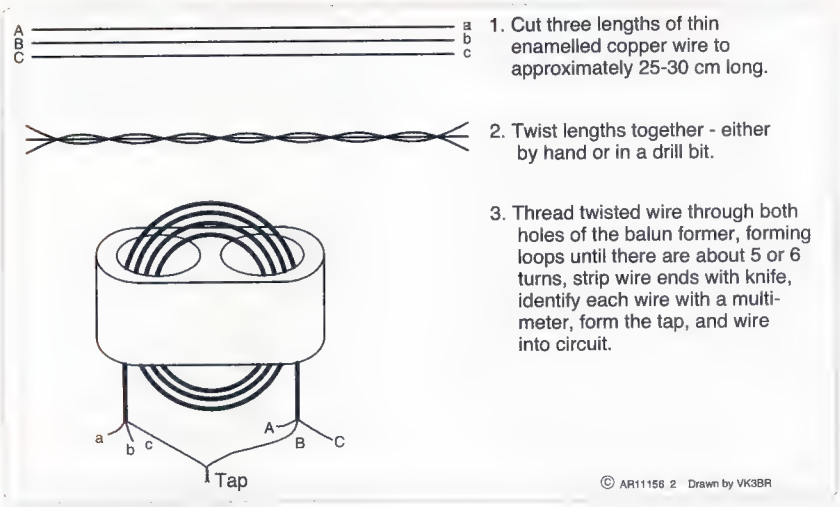

Figure 2: Winding the balun transformers.

Front end

Despite its few parts, building the balanced mixer is fiddly because of the need to wind ferrites and wire them to the diodes correctly.

Figure 2 shows how to do it. Start with three pieces of thin enamelled copper wire (approximately 0.2 - 0.3 mm diameter – not critical) about 30 cm long. Lay them flat and parallel. Put one end of the three wires in a drill chuck (an egg beater style hand drill held between the knees is fine) and grip the other ends with pliers. Or if you have a workshop, hold the ends in a vice and the drill in the hand. Either way, turn the drill until the whole length is twisted with about two or three twists per centimetre.

Loop these twisted wires through both holes of a two hole TV balun former. As the coil is broadband the number of turns is not critical; five or six turns is fine. Aim for the wires to come out the same side for easier mounting. Snip the wires so there is only about four cm protruding from each end and untwist.

From each wire scrape about five mm of enamel off the end. Use a hobby knife; dentists everywhere recommend not using teeth. Use a multimeter or continuity tester to identify each pair.

Connect two of these six wires – one from each side – to form the centre tap. These need to be different leads or otherwise you would just short out one. Test this with a continuity tester – from the centre tap you will find a short

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circuit to one other single lead on each side. Gently bend these three leads to one side; these form the connections to the diodes. Confirm that the remaining two leads form a circuit with one another but not with the leads connecting to the diodes or the centre tap.

Repeat for the second balun transformer as the mixer needs two.

Wire the balanced mixer, noting diode polarities and correct coil and centre tap connections. Finally assemble the RF preamp. Unlike the mixer the only coil winding needed here is four turns of enamelled wire over the body of the 4.7 μH RF choke – this forms the antenna connection. 60/160 pF transistor radio tuning capacitors have two sections – for this stage only the 160 pF section (often marked 'A') is needed. The centre pin (marked 'G') is grounded.

Testing and use

Connect a home station 40 metre antenna, don headphones, apply power and tune the peak control. If all is well you will hear noise peak when it is around 1/3 the way from fully anti-clockwise. Provided it is not during a dead time, for example midday, you should hear 7 MHz SSB signals if within about 800 km of a major city. Another (quieter) noise peak will be audible near fully clockwise – this is 20 metres. You will have reception here but signals will not be as loud as 40 metres.

If nothing is heard use an RF generator (or HF transmitter into a dummy load) to generate a test signal. Likely reasons for no reception include wrong transistor polarity or incorrect wiring around the balanced mixer.

Once working add parts omitted before (for example, top cut filter, switches, and sockets), tidy wiring and give it a test in the field – perhaps a park or beach. Ten metres of wire, preferably thrown up in a tree, should form a satisfactory antenna but more is better.

Results

The Porta 40 provides comfortable speaker reception of 40 metres and the stronger DX signals on 20 metres. It is pleasingly free of drift, microphonics and hum that sometimes plagues simple receivers. If made slightly larger it is also recommended as a 'first receiver' for a beginner. It can be heard demonstrated on the author's YouTube channel at *www.youtube.com/vk3ye*

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Surviving the storms

Rob Norman VK5SW

When it comes to rough weather, antennas are a worry for the radio amateur. As with a lot of things in life, it pays to think in terms of the worst case scenario. The same principle applies to antennas.

Even though it can be very windy here, I decided to put up a two element five band HF Quad antenna, for a number of reasons. Having had a Quad some years ago, I knew that they worked well at a low height. Although rather cumbersome, to me the advantages outweighed the disadvantages. One of the major disadvantages is their flexing in the wind.

Photo 1: The Cubex Quad antenna on top of the windmill tower.

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Photo 2: The Hustler 6BTV vertical sits on top of the seven metre steel pole.

Even so, having done the homework I purchased a Cubex Quad antenna from the US and was pleased to see the quality of materials used and the design and engineering of the antenna was of a very high standard. One feature in particular seemed to be a good idea and that was that the wire elements passed through the fibreglass spreaders. The antenna was purchased three years ago and erected on a seven metre, four legged windmill tower with a 10 metre pole running through the centre of it. The height of the Quad was 10 metres above the ground. I had asked for heavier gauge wire than is usually supplied with the antenna because of the strong winds in this area.

Another antenna here is a multiband HF ground plane using the Hustler 6BTV vertical up on a seven metre steel pole with 10 radials around the base of the radiator. Because of the windy conditions here I used high tensile steel fencing wire for the radials. The vertical itself is over 7 metres in length, so special Dacron rope was used to tie it to the ground in two places along the length of the vertical with a total of four ropes at each point. So, it was pretty well supported. This antenna had been in the air for four years.

Recently, another antenna was erected. It was a multiband HF Vee Beam using 90 metre lengths of high tensile steel fencing wire for each leg. Not the most efficient radiator but robust though.

These antennas have recently been put to the test.

In November 2011, a rare event occurred in this area. It made the headlines of the television news here in South Australia. A 'mini tornado' roared through un-roofing houses, blowing over TV antenna towers and the like in the town of Morgan, in the Riverland, which is about 10 kilometres away. On the property here many trees were uprooted and blown over. Hundreds of branches were ripped from the trees, some blocking our roads. Glass windows were smashed; leaves were ripped off the 'blue' bushes and 'sheoak' trees. Tree trunks were sandblasted by the sandy soil whipped up by the winds. Bushes were uprooted, blown over and sandblasted. It was a war zone.

Fortunately these antennas survived it all. The Quad was facing side on to the winds when they tore through. Having said all this, the next storm to come through this way may well bring down the antennas but the experience has taught me that you can never over engineer them. It pays to think in terms of the worst case scenario. You never know what the future holds. You never know what is around the corner.

Photo 3: Damage done to a large native tree indicates the strength of the storm.

Photo 4: Another tree, one of many that came to permanent grief as a result of the storm.

An FT-817 accessory box

Dale Hughes VK1DSH

The Yaesu FT-817 transceiver is a compact multi-mode, multi-band radio which is ideal for field use due to its small size and remarkable capability. I have been using one for the last few VHF/UHF field days and have mostly found it a pleasure to use. It was apparent from the beginning that to simplify field use a number of 'accessories' could be usefully added and this project incorporates those accessories. These accessories are:

- Polarity protection for the supply voltage to the radio to prevent damage to the transceiver due to inadvertent incorrect connection to the power supply.
- Automatic antenna switching so that the correct antenna is selected for the required operating band.
- Provide a band-switched 'Press-to-talk' (PTT) signal that can be used to operate external single-band amplifiers.

Figure 1 shows a functional block diagram of the box. These functions make field operation very quick and simple. The band-switching is especially useful as it eliminates the need to shuffle connectors when changing bands. Figure 2 shows the accessory box with a companion power amplifier for the 2 metre band.

All the required control signals are available on the rear panel 'ACC jack' of the FT-817. A signal called 'BAND DATA' is a voltage that corresponds to the band to which the radio is currently set. The nominal voltages for the three bands of interest are shown in Table 1. In my case the measured voltage was about 0.2 V less than specified, so individual radios should be checked prior to use.

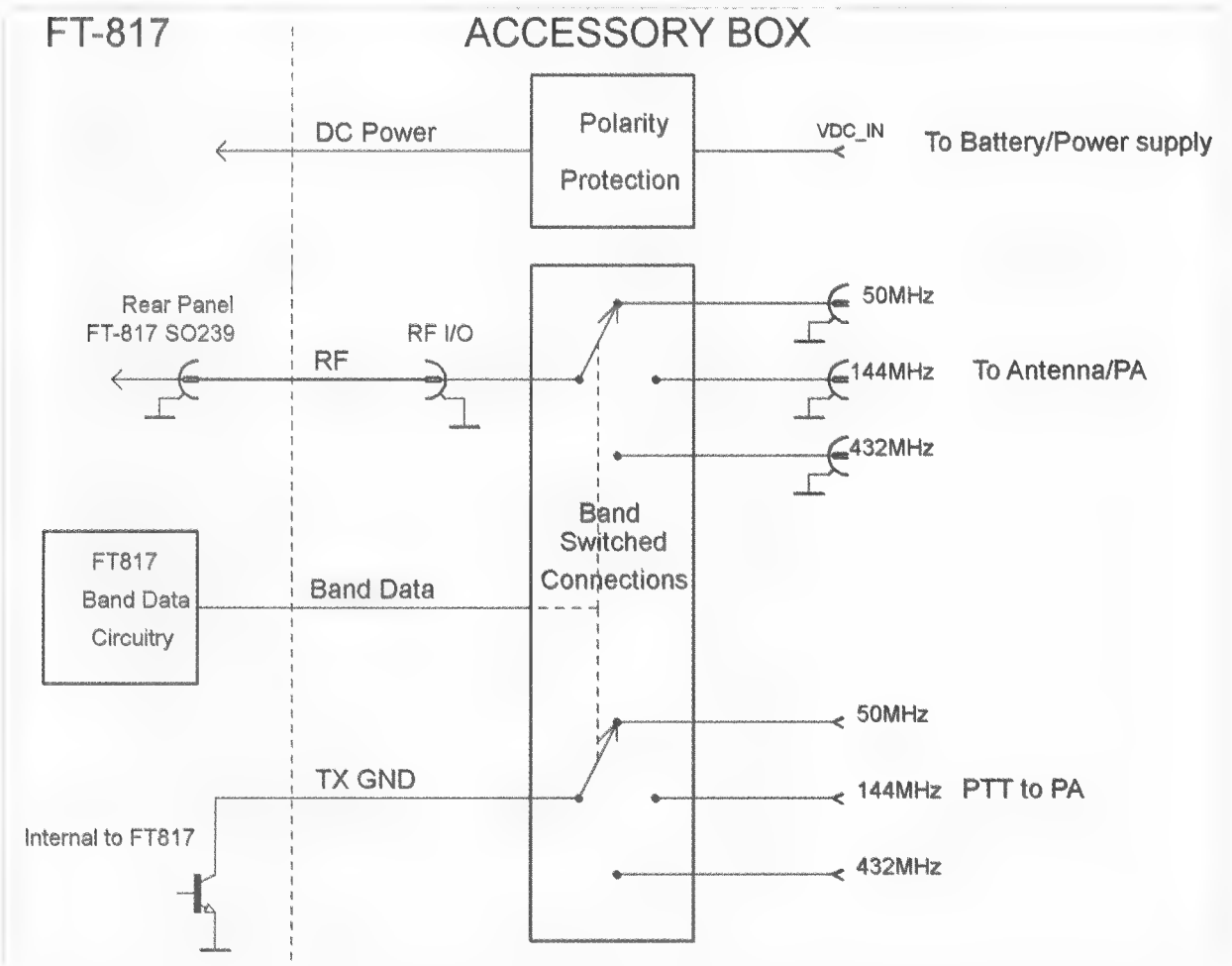

Figure 1: Functional block diagram of the accessory box. The antenna switches are relays, but the PTT switches are opto-couplers.

Figure 2: The FT-817 transceiver mounted on top of the accessory box which is connected to a power amplifier for the 2 metre band.

The other required signal is called 'TX GND' and this is a pulled to ground through an open collector transistor when the FT-817 enters transmit mode.

Circuit description

Figure 3 shows the schematic diagram of the accessory box. Polarity protection is provided by a power FET (Q4) which will only conduct when the correct polarity voltage is applied. The advantage that this circuit has over a simple diode is that the voltage drop across the FET is only a few millivolts compared to the (approximately) 600 mV drop across an ordinary power diode. Fuse F1 and Zener diode D1 provide protection against over-voltage and over-current situations.

The BAND DATA signal is interpreted by U1 which is a LM3914 LED dot/bar driver. This chip contains a string of voltage comparators, a voltage divider and reference voltage source. In this application it is configured as a 'dot' driver which means that only one of its outputs are pulled to ground at any one time – depending on the input voltage range. In normal use, the outputs would drive LEDs, but in this case the selected outputs drive relays via PNP transistors (Q1 through Q3). The internal reference source of the LM3914 is adjusted by means of resistor R1 so that it is within the range required for this application. In my case it is set to approximately 3.65 volts which results in outputs 8, 9 and 10 of the LM3914 pulling to ground when the bands 50 MHz, 144 MHz or 432 MHz are selected. Other radios may require slightly different settings. When the selected output goes low, the corresponding RF relay is energised by a PNP Darlington transistor. Each relay coil is fitted with an indicator LED and a diode to clamp the reverse EMF pulse generated by the relay coil when it changes state.

Press-to-talk switching and routing is done using a number of low-current opto-couplers (U2 through U4). When the required RF relay is energised, only the opto-coupler associated with that band can be turned on when the TX GND line from the FT-817 is pulled to ground. The opto-coupler output is an open-collector which can then be used to control an amplifier or other device. Note that the maximum current that can be sunk by the specified opto-coupler collector is 50 mA.

Components and construction

None of the components used in the accessory box should be difficult to locate and, with the exception of the relays, indicator LEDS and FET Q4, all components are mounted on a small piece of Vero-board inside the accessory box. The relays I used were RF coaxial relays removed from old equipment and the relays used must be suitable for RF use at up to 432 MHz and there are many sorts of other suitable relays. Mini-Kits have a number of suitable relays; see *http://www.minikits.com.au* for more details of suitable RF relays. The opto-couplers are low current devices so that the current switched by the FT-817 output is minimised.

Conclusion

The accessory box has proven to be very useful for rapid band changes typical of field day operation.

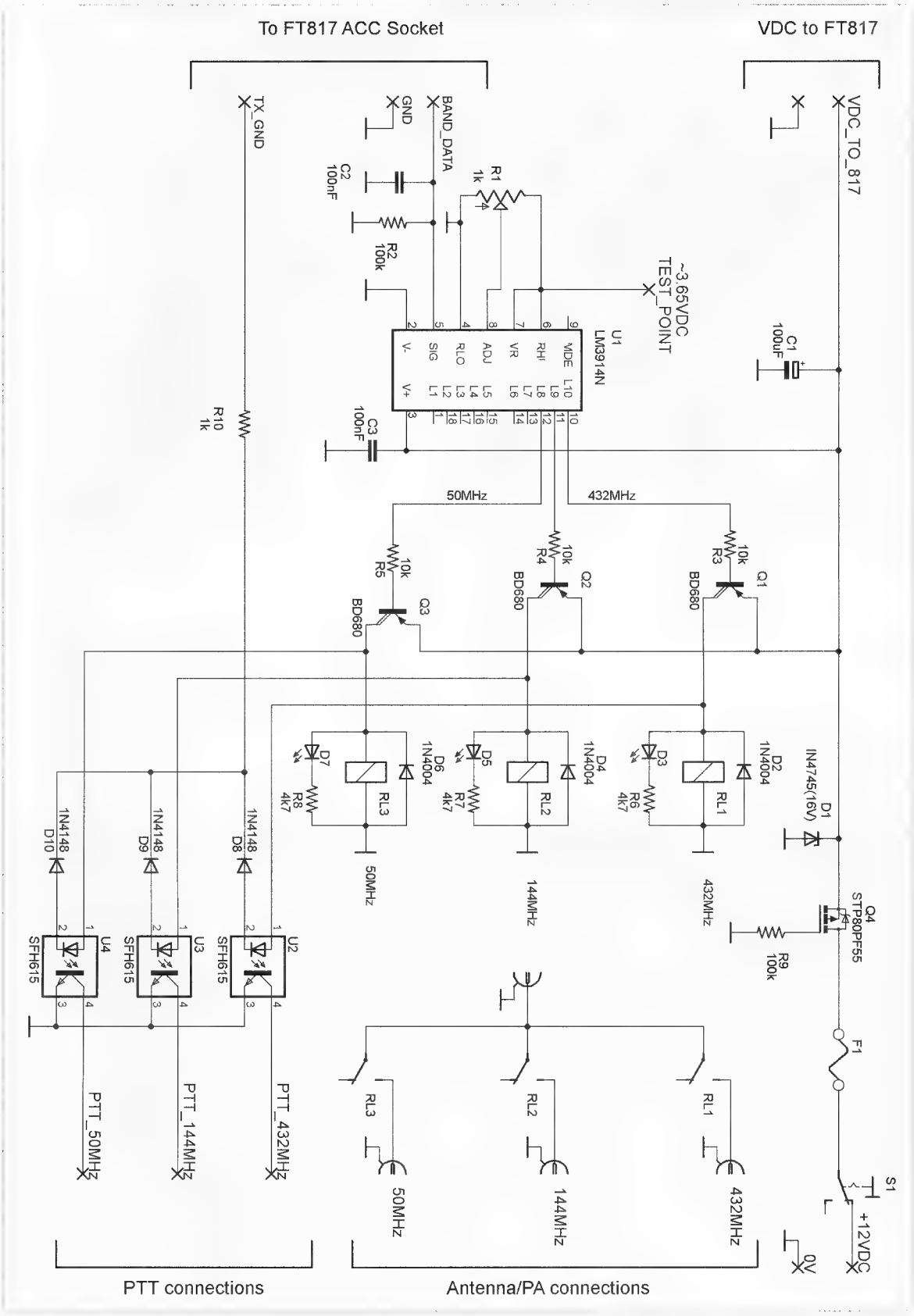

Figure 3: Schematic diagram of the accessory box.

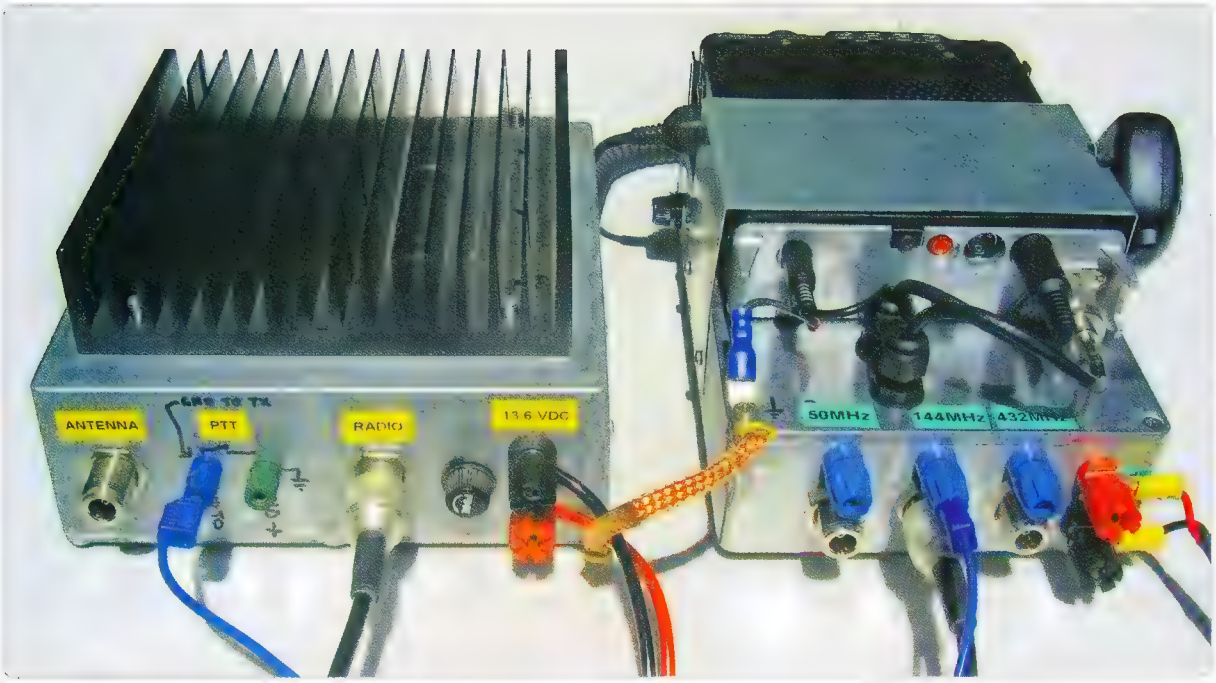

Figure 4: Rear view of the accessory box and amplifier. The coaxial connectors and associated PTT control lines for the three RF output bands can be seen on the rear of the accessory box. A heavy copper braid links the accessory box and amplifier to minimise any differences in ***earth*** *potential.*

Automatic switching of the appropriate antenna is very useful and makes sure the correct antenna is used for the band being used. The PTT line is similarly switched so that external single band amplifiers can be used if desired.

Band	Voltage
50 MHz	3.33 V
144 MHz	3.67 V
432 MHz	4.00 V

Table 1: Nominal BAND DATA voltages. A voltage greater than 3.33 V but less than 3.67 V signals that the radio is set to the 50 MHz band; similarly for the other bands. The exact value for an individual radio should be checked prior to use.

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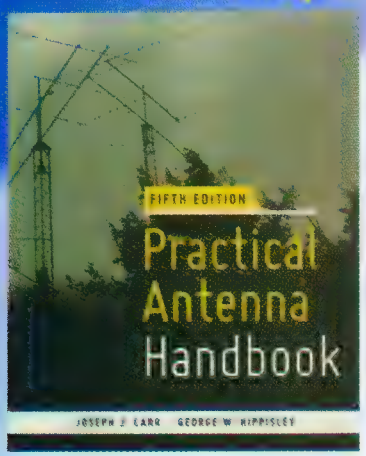

Practical Antenna Handbook

Reorganized to flow logically from broad physical principles to specific antenna design and construction techniques, the book begins by covering the fundamentals.

Then the half-wave dipole is discussed both as an excellent antenna in its own right and as a conceptual tool for predicting the performance of other designs. Transmission line impedance matching techniques—and a companion Smith chart tutorial—lead into "must have" accessories for tuning, monitoring, and troubleshooting antenna system performance.

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Analysis of the Off Centre Fed (OCF) dipole

Ron Sanders VK2WB

Introduction

The following article attempts to analyse the Off Centre Fed (OCF) dipole in a typical amateur radio installation covering 7, 14, 21 and 28 MHz, with particular emphasis on the losses. The analysis is carried out by using programs which are available on the internet.

Editor's Note: The version of this article published here has been abridged. A full version is available on the AR pages of the WIA website.

The initial antenna design is done with **EZNEC**, which sets the basic antenna parameters, such as height, length, feed point, transformer ratio, transmission line and can calculate all intermediate impedances. See *AR* Jan/Feb 2011. Reference 1.

The program **TLDetails** calculates transmission line (T-Line losses) and SWR. Reference 2.

LTspice is a simulation program which can simulate the data obtained from EZNEC and calculate losses in the transformer, which is treated as ideal in EZNEC. Reference 3.

EZNEC data -- Reference 1 – Figures 4 - 8

L single wire 1.5 mm diameter, 20.9 m long, 10 m above real ground.

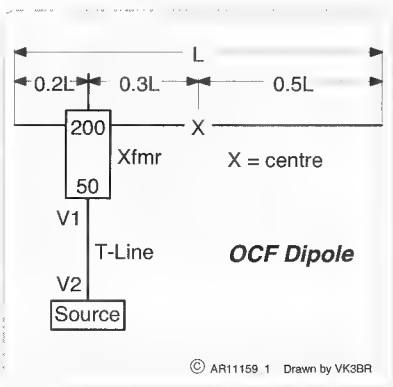

Figure 1: OCF dipole.

F (MHz)	Ant feed (0.2 L) r +/- jx	Xfmr input (V1) r +/- jx	T-Line input (V2) r +/- jx
7.1	276.3 + j139.6 (3.13 μH)	69.19 + j34.89 (782 nH)	85.70 + j15.15 (339.6 nH)
14.2	117.50 – j4.69 (2.39 nF)	29.47 – j1.17 (9.6 nF)	36.73 + j12.47 (139.8 nH)
21.2	110.3 – j22.96 (327 pF)	27.67 – j5.74 (1.3 nF)	36.82 + j15.16 (113.8 nH)
28.5	318.7 + j30.02 (167.6 nH)	79.78 + j7.51 (41.9 nH)	43.06 – j16.16 (336.4 pF)

Table 1

Xfmr 200:50 ohm impedance ratio – 421a (Figure 2), 421c (Figure. 3).

T-Line 15 m of RG-58C, VF = 0.66, Loss = 8 dB/100 m @ 30 MHz

Table 1 shows source impedances at different points along the antenna system.

The equivalent component value for jx is shown in brackets.

Xfmr input (V1) is the impedance calculated by EZNEC with the source at V1.

Transmission Line (RG-58C) Loss – Reference 2

Power at source (V2) = 100 W

Table 2 shows power loss for T-Line = 15 m of RG-58C

F (MHz)	Power (W) @ V1	Power (W) Loss
7.1	84.6	15.4
14.2	79.0	21.0
21.2	74.0	26.0
28.5	72.4	27.6

Table 2

Table 3 shows the SWR readings at the source (V2) and at the far end (V1).

F (MHz)	SWR @ V2	SWR @ V1
7.1	1.79	1.98
14.2	1.53	1.70
21.2	1.63	1.90
28.5	1.43	1.62

Table 3

Transformer Design – Reference 3, Reference 4

Note: ECW = enamelled copper wire

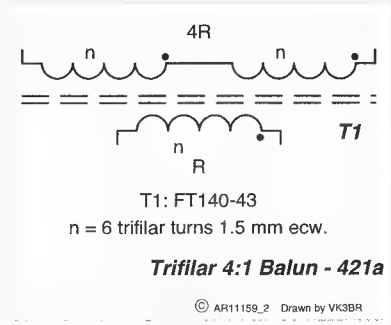

Figure 2: Xfmr 421a.

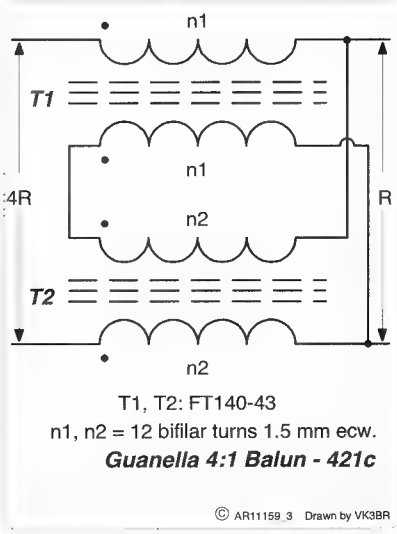

Figure 3: Xfmr 421c.

F (MHz)	Power (W) @ V1	Power (W) @ Antenna	Power (W) Loss
7.1	84.6	72.0	12.6
14.2	79.0	75.9	3.1
21.2	74.0	71.7	2.3
28.5	72.4	67.8	4.6

Table 4

F (MHz)	Power (W) @ V1	Power (W) @ Antenna	Power (W) Loss
7.1	84.6	83.2	1.4
14.2	79.0	78.8	0.2
21.2	74.0	73.9	0.1
28.5	72.4	72.1	0.3

Table 5

F (MHz)	Total Loss (W) 421a	Total Loss (W) 421c
7.1	15.4+12.6 = 28	15.4+1.4 = 16.8
14.2	21+3.1 = 24.1	21+0.2 = 21.2
21.2	26+2.3 = 28.3	26+0.1 = 26.1
28.5	27.6+ 4.6= 32.2	27.6+0.3 = 27.9

Table 6

The transformer core uses #43 ferrite material and therefore the winding inductance changes with frequency. Values were calculated for each band using the program FT_calc_1.1.xls. Figures 10 and 11 reflect the winding inductance (50 µH) for 7 MHz.

The common mode rejection can be checked with program Balun_cmr_1.1.xls.

Both programs are available on the internet – *Reference 4.*

Loss in xfmr 421a due to antenna mismatch – Reference 3 – Figure 10 – Figure 10a.

Power in column 2 of Table 4 is that available at V1 with 15 m of RG-58C.

Power in column 3 of Table 4 is that actually dissipated in the antenna.

Loss in xfmr 421c due to antenna mismatch – Reference 3 – Figure 11 – Figure 11a.

Power in column 2 of Table 5 is that available at V1 with 15 m of RG-58C.

Power in column 3 of Table 5 is that actually dissipated in the antenna.

Total OCF Power Loss – 100 W input

Table 6 adds losses from Tables 2, 4 and 5 for T-Line = 15 m RG-58C.

Conclusion

The OCF dipole is a compromise design HF antenna which allows operation on several bands without using an antenna matching unit (ATU). Using EZNEC, the design of an OCF dipole allows many variations in overall antenna length, height and feed point to achieve the desired result. To accommodate the four bands, the overall length of the antenna (20.9 m) was made longer than that for a resonant dipole (20.2 m) on 7.1 MHz. The demo version of EZNEC is restricted in the number of wire segments.

The design aims to keep the SWR at the T-Line source (V2) below 2:1 on the bands of interest. Apart from T-Line loss, most losses are due to the inevitable mismatching between the transmission line and the antenna feed point impedance via the transformer. Use of RG-213 will reduce the T-Line loss. Losses are reduced by using the Guanella 421c transformer design, which also has a better CMR, so reducing feedline radiation and receiver noise.

References

Ref 1: EZNEC: *www.eznec.com* and AR Jan/Feb 2011

Ref 2: TLDetails: *www.ac6la.com/tldetails.html*

Ref 3: LTspice: *www.linear.com/designtools/software/#LTspice*

Ref 4: FT_calc_1.1.xls, Balun_cmr_1.1.xls: *http://www.vkham.com/Software/downloads.html*

Suggestions for building an OCF dipole – Figure 12 and Figure 12a.

Most amateurs have space limitations for erecting an antenna, so I suggest you first determine maximum antenna space available, particularly heights of the wire ends and any necessary bends. This is true for any antenna simulation program. In EZNEC a wire is a straight length, so the number of horizontal and vertical bends will determine how many wires are required.

In my example I have used a simple single wire where ends are at the same height and there are no bends, so the co-ordinates in the *Wires* table in EZNEC will be the true wire lengths.

If you have the wire ends at different heights, the actual wire lengths will not correspond to the co-ordinates entered in the *Wires* table. Figure 12 shows the

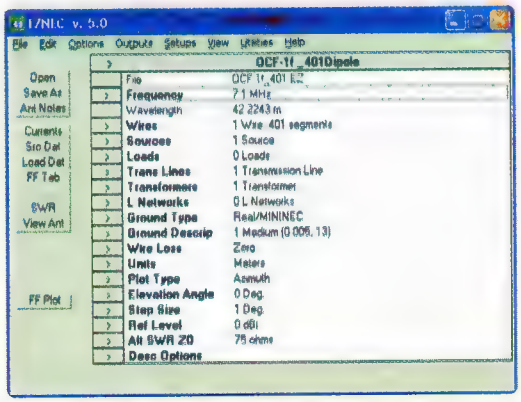

Figure 4: EZNEC main screen.

corrected co-ordinates for an antenna with a bend in the middle and the ends at different heights.

Figure 12a shows the antenna and that EZNEC has correctly calculated *wire number 1* as 10.4502 m using the data in the *Wires* table of Figure 12. In this case data will be different compared with our simple example and would require all new EZNEC calculations.

Comments: *ron.kiama@gmail.com*

Program screen shots using 7.1 MHz examples – Figures 7, 8, 9, 10, 10a, 11, 11a and 12 appear on the WIA website, under Amateur Radio, referenced to this month's issue of AR. The captions are, however, detailed below:

Figure 7: EZNEC source at antenna feed point.
Figure 8: EZNEC source at xfmr input (V1).
Figure 9: TLDetails T-Line SWR and loss.
Figure 10: LTspice Xfmr 421a power transfer from T-Line (V1) to antenna.
Figure 10a: LTspice plot Xfmr 421a input (V1) and output (Antenna) power.
Figure 11: LTspice Xfmr 421c power transfer from T-Line (V1) to antenna.
Figure 11a: LTspice plot Xfmr 421c input (V1) and output (Antenna) power.
Figure 12: EZNEC wires table with ends at different heights.

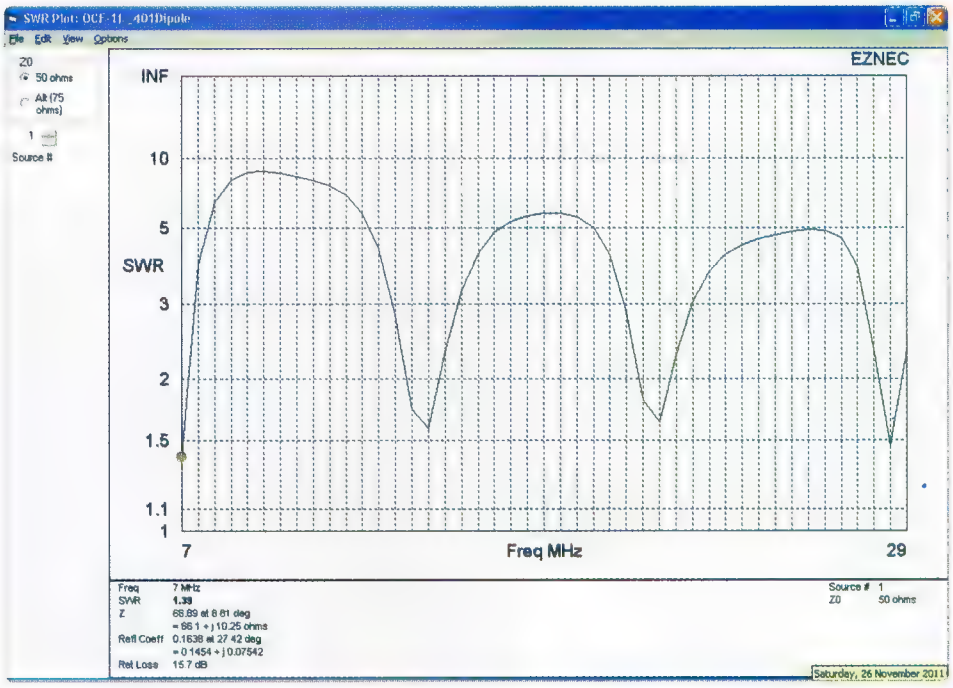

Figure 5: EZNEC – SWR 7-29 MHz.

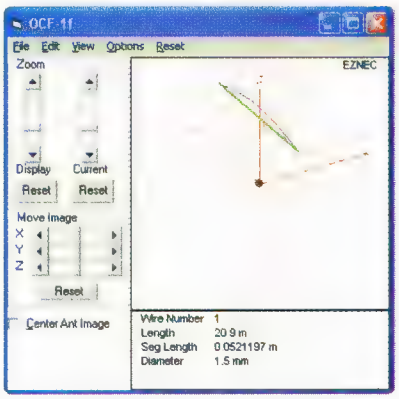

Figure 6: EZNEC antenna view.

Figure 12a: EZNEC antenna view with wires at different heights.

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Remembrance Day contest 2012

Alan Shannon VK4SN – RD contest manager

What a great weekend the Remembrance Day contest was. There were 1346 unique stations on air and with excellent propagation and low noise, made for a large quantity of contacts. 38,000 log entries in fact.

The new rule structure bought activity levels back to where it was many years ago. The new three hour re-contact period did what it was meant to, and made activity shift to different bands for new contacts. (Under the old two hour rule, it was too easy to sit on one frequency without having to look for new stations to work.) Many logs show run rates of working one to two contacts per minute for most of the weekend's busy periods. Several soapbox comments reflected appreciation of rule simplification and brought new and long lost participants back to the fold. Those who may not have participated due to the VHF/UHF amalgamation with HF sorely missed an opportunity to join in the busiest RD seen in a while.

Although log submission fell just short of last year's entries, the logs this year contain many more contacts resulting in 5165 more points than last year. Logs were received from 16 Foundation, 25 Standard and 183 Advanced licences making up 16.6% of actual participants. There were 133 unique Foundation licence calls logged, 45 QRP stations, 51 portable, and 16 mobile. 18 paper logs and 211 electronic logs were received. Of these, five were treated as check logs. 155 operators used VKCL Logger, 46 RD Logger, eight Excel and the rest unknown. 133 logs contained HF contacts only, 78 contained HF, VHF & UHF contacts, and only 12 VHF and above logs.

Photo 1: Mark VK4ADX at his operating desk.

A contest is where one's skills as an operator and logging accuracy are tested. Points will be lost and one may have their log certified as a check log due to poor logging or if failing to abide by rules is not met. It became very obvious with some of the logs received, that some participants did not read the rules – to their detriment. Logs became a check log because of:

a) Rule violations (serial exchange for example)
b) Major logging errors like missing columns (frequency, date, or time for example)
c) Totally unreadable / unusable for paper and electronic entries.

Some had downloaded the cover sheet and did not download the log book provided, and then

State	Total logged participants	% who submitted a log	Logs submitted	* Logged contacts	Phone	CW	Raw score	Weighted score
VK 1	28	32.1	9	1309	1308	1	1318	1.5
VK 2	279	11.5	32	7398	7010	388	9260	2.15
VK 3	287	11.5	33	4335	4128	207	5288	1.25
VK 4	248	16.1	41	7599	7406	193	9134	3.13
VK 5	200	20	41	7261	7079	182	8367	5.37
VK 6	129	35.7	46	6329	6256	73	8334	6.11
VK 7	93	18.3	17	3191	3072	119	3989	7.15
VK 8	8	12.5	1	86	86	0	85	0.52
ZL	73	4.1	4	614	583	31	885	0.56
P2	1	0	0	0	0	0	0	
TOTAL	**1346**	**16.4**	**224**	**38122**	**36928**	**1194**	**46660**	**TOTAL**

* Net of check logs

Table 1: RD 2012 contest log analysis.

missed relevant info. If you have a computer and can download the files provided, please use them as making your own format up can easily lead to missing information and loss of points or having your log delegated a check log. Points were deducted for miss-logged calls, but this year I have been forgiving where /M2 /P1 type entries were incorrectly entered. Correct logging examples are now on the WIA RD website. 36 logs were score corrected for incorrectly logging calls, scoring for duplicates, only scoring one point during the three point session, and not having scored where the contact was allowed and not logging the receive exchange.

Finding log errors was made easy by Deane VK3TX's Cabrillo checking software. The software produces a report showing wrongly logged calls, duplicates, and a host of other possible problems. Mike VK3AVV and John VK5DJ worked closely with me to bring the logging software up to speed. Except for a couple of minor issues the loggers and checking software made log checking very easy and saved many hours in the checking process. My sincere thanks to all involved for being the first to bring Cabrillo log checking into Australian domestic contesting.

The new scoring system developed by Andrew VK1DA sees state scores running very close indeed. VK7 is this year's winner with very close runners up VK6 and VK5. The scores are totally dependent on the operator sending in their log, and the percentages are very poor as can be seen in Table 1. Submitting a log is the only way to support your fellow hams with the state score.

Photo 2: The VK4ADX shack.

Individual Efforts

As mentioned earlier, logs contained many more contacts on average than previous years. Great efforts were received from Wayne VK7NET and Ken VK4QH with 1055 and 948 points respectively for the SO Phone category. Ray VK6ZRW had a superb lead to take 1st place with 891 points in the SO Mixed category which produced six more entries than last year.

105 operators were spread over 10 Multi single and 12 MM stations. VK2GGC Multi-Single station operated by VK2SJK, VK2HFP, VK2SD, VK2FDXR, VK2ZMT and VK2MOR produced a massive 1148 points to win their section and produce the best score overall. VK4XA recorded another great score of 935 taking 1st place in the Multi-multi section.

The new QRP section was well represented with a total of 45 taking part and 16 submitting logs.

Onno VK6FLAB won the section with 259 points with Bob VK4BYX runner up. Bob was reported by many as having a great signal. Bob's OB2040 beam sits 25 metres in the air on top of a narrow mountain ridge. Who said free space antennas don't perform?

Although there was no Rookie category (that is, first year as an amateur), VKHAM (.com) has kindly sponsored an award for the highest scoring Rookie. This year eight Rookies, VK2FNJW, VK2FWWD, VK3FEZZ, VK3NCC, VK4FAAS, VK4FPDG, VK4FABF and VK6FAAW submitted scores from 23 to 354. Congratulations to Doug VK2FWWD with his excellent score of 354.

Seven teams were submitted, with team Wallaroo Trent VK4TS, Catherine VK4GH and Wayne VK7NET taking honours followed by the Lockyer Legends Ken VK4QH, Peter VK4MN and Alan VK4SN, and Elizabeth ARC VK5LZ, Paul VK5NE and Peter VK5KX for third place. One team seemed to disappear in battle leaving six in the end. See Table 2.

TEAM NAME	OP 1	OP 2	OP 3	TOTAL
Wallaroo	VK4TS	VK4GH	VK7NET	1898
Lockyer Legends	VK4QH	VK4MN	VK4SN	1819
Elizabeth ARC T1	VK5LZ	VK5NE	VK5KX	1506
Wait-A-While	VK6ZRW	VK6TWO	*VK6IR	1460
ACT Contesters	VK1MT	VK1HW	VK1PAR	992
Elizabeth ARC T2	VK5ZD	VK5UE	VK5AIM	336

* VK6IR did not submit a log.

Table 2: RD 2012 contest team information.

Band usage

A full list of statistics is on the WIA RD website in PDF format. Soapbox comments have been copied and pasted from logs and emails, and are also available.

From this year onwards, awards will be sent from the WIA office for all major 1st, 2nd and 3rd place winners. Downloadable PDF certificates for individual state placing are available.

In closing, everyone reflected a very positive outlook and acceptance of the rules and by next year the word will have spread. As others have said, "Can't wait till next year's RD".

The full operator's rankings in Table 4 below.

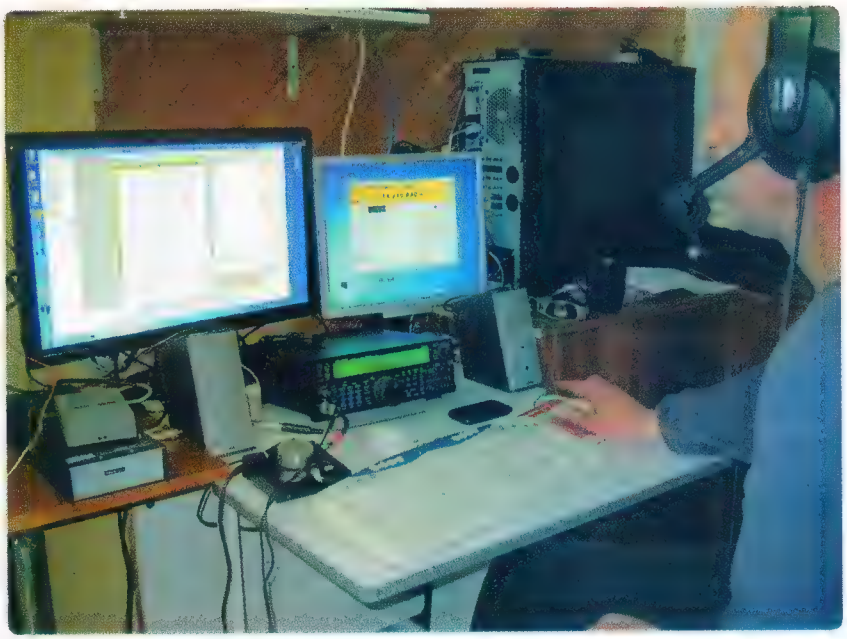


Photo 3: Wayne VK7NET - Single Op winner.

Band	Contacts	Phone	CW
160	906	818	88
80	9236	8690	546
40	17365	16849	516
20	4280	4257	23
15	420	414	6
10	204	199	5
6	496	490	6
2	3416	3416	0
70 cm	1780	1776	4
23 cm	18	18	0
Total	**38121**	**36927**	**1194**

The ratio of phone to CW was 31:1

Table 3: RD 2012 contest contact analysis by band and mode.

Photo 4: The VK2AWX shack.

Single Op Phone

Callsign	Points
VK7NET	1055
VK4QH	948
VK5CB	728
VK2XN	686
VK5BC	649
VK6AXB	631
VK3CKC	619
VK5LJ	591
VK6CSW	584
VK2HBG	564
VK3LDR	530

Callsign	Points
VK4KRX	517
VK4GH	516
VK1HW	504
VK5KX	491
VK4GMH	471
VK7OO	463
VK6MAB	461
VK5UV	406
ZL2TZE	385
VK4MN	384
VK7HW	374

Callsign	Points
VK2FWWD	354
VK6HAD	351
VK4TS	327
VK5KBJ	318
VK6BDO	318
VK6AH	307
VK6FMON	307
VK5MK	294
VK4FAAS	287
VK3TCX	286
VK6MM	286

Callsign	Points
VK3SIM	283
VK4JRO	277
VK3GC	273
VK6FLAB	259
VK1PAR	256
VK3MEG	255
VK4MON	253
VK4MAD	252
VK6AIF	249
VK7HDM	241
VK6KTV	239

Callsign	Points
VK5MCB	220
VK6USB	216
VK4KKN	216
VK2BGL	210
VK3TKO	208
VK5BWH	200
VK4TAA	195
VK5FCJM	188
VK7DG	185
VK6JP	181
VK7FB	179

Table 4: RD 2012 contest full operator's rankings.

Callsign	Points
VK5ZD	173
VK6DT	172
VK2EJW	169
VK6KMC	169
VK6LV	169
VK7VH	167
VK5DJ	162
VK3AKT	161
VK3AMW	159
VK3LM	146
VK5DMC	146
VK5OQ	145
VK6NI	138
VK2BAM	134
VK6NWK	131
VK1DW	122
VK5AIM	119
VK3YE	118
VK5JW	118
VK2LEE	118
VK6FAAW	116
VK4GLC	115
VK4VBU	112
VK5AR	112
VK3XH	110
VK6RC	110
VK7KC	110
VK3NRW	104
VK1WX	103
VK4BLP	102
VK3BPN	101
VK3ASD	100
VK3FASW	100
VK2VE	99
VK5ALX	98
VK3FCAA	96
VK3TWR	95
VK5RV	91
VK5STU	90

Callsign	Points
VK5EE	86
VK8DA	86
VK4FOXS	84
VK5PAS	84
VK6HDX	81
VK7AJ	81
VK6AR	80
VK6ST	80
VK4FPDG	79
VK5ZT	78
VK6OK	76
VK6DDX	75
VK4FABF	73
VK4FSCR	72
VK4FLR	70
VK7HK	68
VK2IO	68
VK5AV	67
VK4SR	65
VK3DY	65
VK6DF	65
ZL3IO	65
VK5MAK	64
VK5LSB	62
VK5JR	60
VK2HV	59
VK6AB	58
VK4GQ	57
VK6CG	56
VK1EY	54
VK2FNJW	51
VK5HR	50
VK6FJA	47
VK5UE	44
VK4FNQ	43
VK4BL	42
VK3ZPF	42
VK4PB	42
VK6POP	41

Callsign	Points
VK2QH	40
VK6MJC	38
VK3FABW	38
VK6OE	37
VK3NCC	36
VK6SN	36
VK4AMM	35
VK5ZKK	35
VK6ADF	35
VK5YX	34
VK7FM	34
VK4IE	31
VK6AFW	30
VK4FSD	28
VK2OX	27
VK4ZUK	27
VK1ZHC	24
VK6GG	24
VK3FEZZ	23
VK4KML	22
VK3DGN	20
VK6FLMJ	20
VK4JAM	19
VK6IW	17
VK2ODD	16
VK3SM	15
VK4CZ	14
VK5SE	11
VK1CM	10
VK3YJ	3

Single Op CW

Callsign	Points
VK7RF	180
VK2EL	150
VK2BJT	136
VK4WM	118
VK3TX	62
VK7AD	10

Single Op Mixed

Callsign	Points
VK6ZRW	891
VK5NE	736
VK6TWO	569
VK4SN	486
VK5ATU	435
ZL3AKM	366
VK3IO	354
VK4AMG	199
VK6KY	177
VK4NP	151
VK6RZ	149
VK7GN/VK4	142
VK2AR	137
VK3LRE	134
VK6ZMS	105
ZL3VZ	71
VK1SV	22

QRP Phone

Callsign	Points
VK6FLAB	259
VK4BYX	194
VK4ATH	162
VK5UU	65
VK2HAZ	47
VK6OE	37
VK7KPC	27
VK6LO	22
VK3XY	20

QRP CW

Callsign	Points
VK3QB	222
VK2ACL	88
VK3AGQ	86
VK5CYM	60

QRP Mixed

Callsign	Points
VK2IG	176
VK5CZ	122
VK2PN/5	35

Multi-Single

Callsign	Points
VK2GGC	1148
VK2ACW	752
VK2ATZ	600
VK2MA	429
VK2WG	412
VK5LZ	279
VK1MT	232
VK6AHR	184
VK2AFY	181
VK2BOR	149

Multi-Multi

Callsign	Points
VK4XA	935
VK2AWX	862
VK4HH	636
VK2CL	618
VK7OTC	581
VK2AWA	523
VK4WIS	505
VK3CMZ	459
VK5MTM	314
VK2AMW	208
VK5GRC	187
VK5BAR	177

Check Logs

VK4XY
VK6KHZ
VK3FMPB
VK2KF
VK6CN

Over to you

A transmitter to match a DDC?

The Editor,

Now that digital down conversion (DDC) receivers are coming down in price and up in capability and Laptop Computers are also coming down in price and up in capability, we have available a first class receiver for the shack and the field.

What I would like to have is a design for a 100 W CW Transmitter operating off 12 VDC. Looking through the Web I find lots of old style simple transmitters using glowing Bottles and 700 VDC which is not attractive though tempting. CW is not dead and still serves to break through the mush in the sky. The DDC receivers are giving us the capability to hear stations and what we need now are some transmitter designs to match these receivers.

Has anyone such designs? Even a one-band Tx would be a step forward.

Regards,

Ken Fuller VK4KF

Try something different with amateur radio

Miles Burke VK6MAB

In the two years I have been licensed, I have heard amateurs often refer to radio as a fantastic hobby. That's certainly true, however I believe it's also a misnomer; amateur radio really is an entire mélange of interesting hobbies.

I've been lucky to having met a wide variety of amateurs from all walks of life, which has proven to me that the amateur radio fraternity really is a great cross-section of society in general. As a fairly recent inductee to this fantastic pursuit, I've been keen to explore all aspects of amateur radio; from rag chews on two metres to working pileups on HF. What I've found is there are seemingly as many differing perspectives on what makes amateur radio interesting, as there are operators.

There are obviously the differences in phone, Morse code and digital modes. I recall reading up on novice theory and being put off by the CW component back in the early 1980s; needless to say I've yet to try my hand at that mode. I've spoken to a few hams in the last year that tell me that phone isn't 'real radio', and plenty more who have held their ticket for decades, yet haven't considered trying out one of the many digital modes.

Your preference in bands seems to be a large divider as well. I spoke to a long time operator who has recently moved into a lifestyle village environment, and who seemed aghast at my suggestion he could at least stay in the hobby by using UHF. He was content in no longer using radio than ever considering frequencies outside of the HF bands.

Conversely, a few days later I chatted to another amateur who couldn't understand how anyone could put up with the noise floor on HF, and said the higher frequencies were far superior for their lack of static.

Then there's the social ragchew versus the quick 'swapping numbers' preferences. This seems to really divide lines, with some people I've spoken to saying they detest the succinct DX details swapping, and much prefer a good old chat, and I've had just as many on the opposing side; who couldn't think of anything worse than being 'stuck in a long-winded chat' with others, when there are still entities and prefixes to chase on the cluster.

The topic of QSL cards is a strong debate, with some who love checking their mailbox every day, and meticulously indexing their collections through to those amongst us who see little point in swapping bits of paper to confirm a QSO.

There's those who like to chase DXpeditions and special calls, often staying up all night or getting up at unreasonably early hours to hunt down that elusive entity whom they have been chasing for months. I'm certainly keen on obtaining the coveted DXCC certificate in the near future.

Who can ignore contesting? It's apparent there are many people out there who live for the excitement of the points tally, and switching on the radio during any major contest is testament to this. Finding a frequency that's not yet taken can be quite the challenge during these times!

I've met a few operators who spend more time working on their homebrew equipment or antenna arrays than actually switching their rigs on; getting far more satisfaction by completing their transceiver or antenna construction projects, than actually communicating with anyone on the bands.

Satellite, EME and other such interests are also an interesting direction the hobby can take you. Tracking when that bird will be overhead, and putting out a few calls, or receiving telemetry can be quite a fun experience.

Foxhunting is a great combination of both radio interests and physical activity (or even challenges at times); this is certainly a great way to introduce youth to the hobby, as I've found running foxhunting activities for Scouts.

These are only just some of the aspects to amateur radio that I've been exposed to since I obtained my licence in 2010. There are so many fascinating hobbies within the umbrella of amateur radio that I believe I've only just scratched the surface.

I'm lucky that I'm relatively new to the hobby, so I'm still exploring what gets me excited and what doesn't. I truly hope that you, dear reader, even if you have decades of experience under your belt, may grasp that wonderment as well, and I urge you to try something different with amateur radio in the near future.

A linear amplifier for 80, 40 and 20 metres

Jim Tregellas VK5JST
endsodds@internode.on.net

With the ACMA trial period for one kilowatt power levels now agreed and commencing in March 2012, thanks to the WIA, I felt it was probably worth publishing broad details of a linear amplifier I have been working on, including some of the reasoning behind the design. Please note that this is not a construction article, but simply something to start minds working along the path to designing and building one's own linear. Parts for these beasts are not that readily available, and the junk box of each builder will probably have unique and expensive parts which can be used, and around which a particular design will evolve.

Warnings

Linear amplifiers with this level of output power are thoroughly dangerous animals, whether based around tubes or semiconductors. 1000 watts of RF (630 V p-p into 50 ohms) no matter how it is generated, will do a great job of killing you, and finding or creating weak points in your antenna system. Tube amplifiers add the perils of high DC voltages to the list of dangers, and there is no such thing as a small mistake with these amplifiers. They are LETHAL, and you should not attempt construction of an amplifier (or even open a commercial unit) unless you are thoroughly competent to do so. Transmission lines to antennas and antenna tuning units etc. should be regarded with similar caution. Finally, also remember that the intense fields these powers produce around antennas should be regarded with considerable conservatism and suspicion.

General concepts

I have built a number of linear amplifiers in the past, and generally these are not simple structures. The complexity normally starts in the power supply, and this is particularly so if the active device in the linear is a power tetrode or pentode. For tubes such as the 4CX1000 and 4CX1500, a highly regulated screen supply is necessary in order to create an amplifier with good intermodulation performance. This screen supply must hold the screen voltage constant within a few tens of millivolts whether the screen grid is sinking current, or later in the tube life, sourcing current. Such a supply is complex and expensive, and produces plenty of waste heat.

In these amplifiers, protection circuitry must be provided in case the plate supply fails, leaving the screen to absorb large amounts of current. Without protection, the screen grid will rapidly melt through over dissipation, destroying a very expensive tube in seconds.

Use of a triode overcomes these problems, massively simplifying both the power supply and control circuits. The price of course is a dramatic drop in the tube power gain, leading to an increase in the drive power required from the exciter. These days this is not much of a problem, as the common transceiver typically provides 100 watts of RF output. To produce 1 kW thus requires the builder to find a triode with a power gain of just 10 dB and this is not difficult.

The question of overall cost raises its head too, and one of the major items is the main power transformer. I ended up winding my own to keep costs down but this is way beyond the scope of this article. If one is aiming for an amplifier with an output power of 1000 watts, then with the tube running in class AB for reasonable linearity, the overall efficiency will probably be around, say, 55% meaning that the power supply will draw about 1.8 kilowatts. However, this is only true for FM or the unrealistic situation of continuous single tone testing at full power. If the linear is going to be used for SSB speech, then even with considerable amounts of speech compression, the average total power draw is unlikely to exceed 500 watts. This simple fact allows massive amounts of weight and cost to be saved. In the amplifier design following, the power supply is rated at 1050 watts continuous which at around 50% duty cycle allows continuous single tone and FM operation for quite long overs. This makes it a very heavy duty design, and many commercial 1000 watt units on the amateur market have supplies rated at only 500 to 600 watts continuous.

A comment on how a high power linear should be used is probably in order here too. First, it is rarely necessary to use a linear at all, as 100 watts and a good aerial system generally deliver the goods. The only normal exceptions to this rule typically occur when one is trying to control a national or international net, or when trying to make oneself heard on an ultra-noisy band or during a large dog pile in a competition. Next, it is wise to run large amplifiers conservatively so that distortion and intermodulation products are minimised. A one kilowatt unit run at a 400 watt level is very neighbour friendly, and the difference in received signal strength between 400 watts and one kilowatt as shown on an S meter is minimal. The writer regards those who use linears simply to demonstrate that 'mine is bigger than yours' as complete idiots, unworthy of an amateur licence.

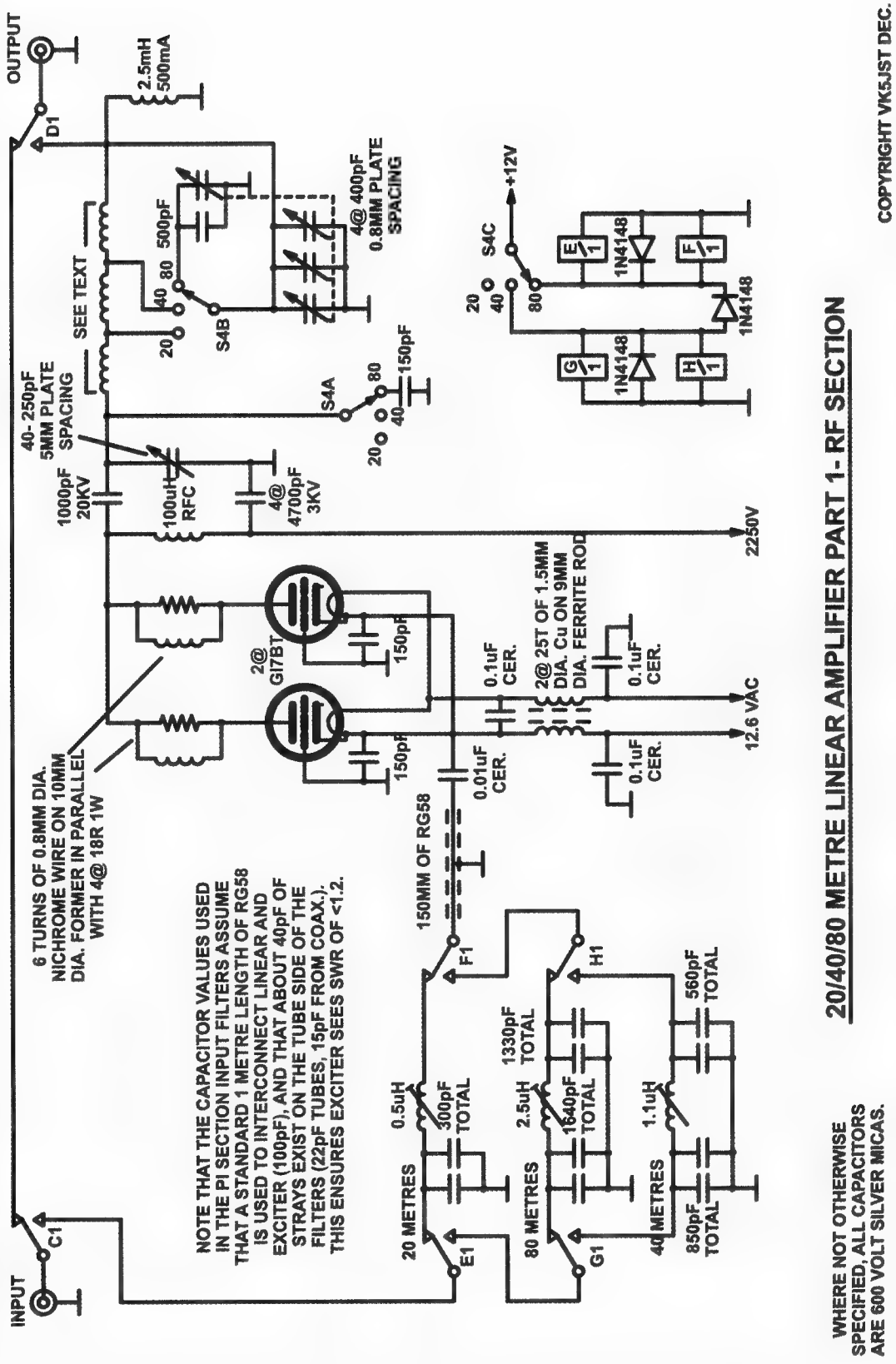


Figure 1: The RF section circuit.

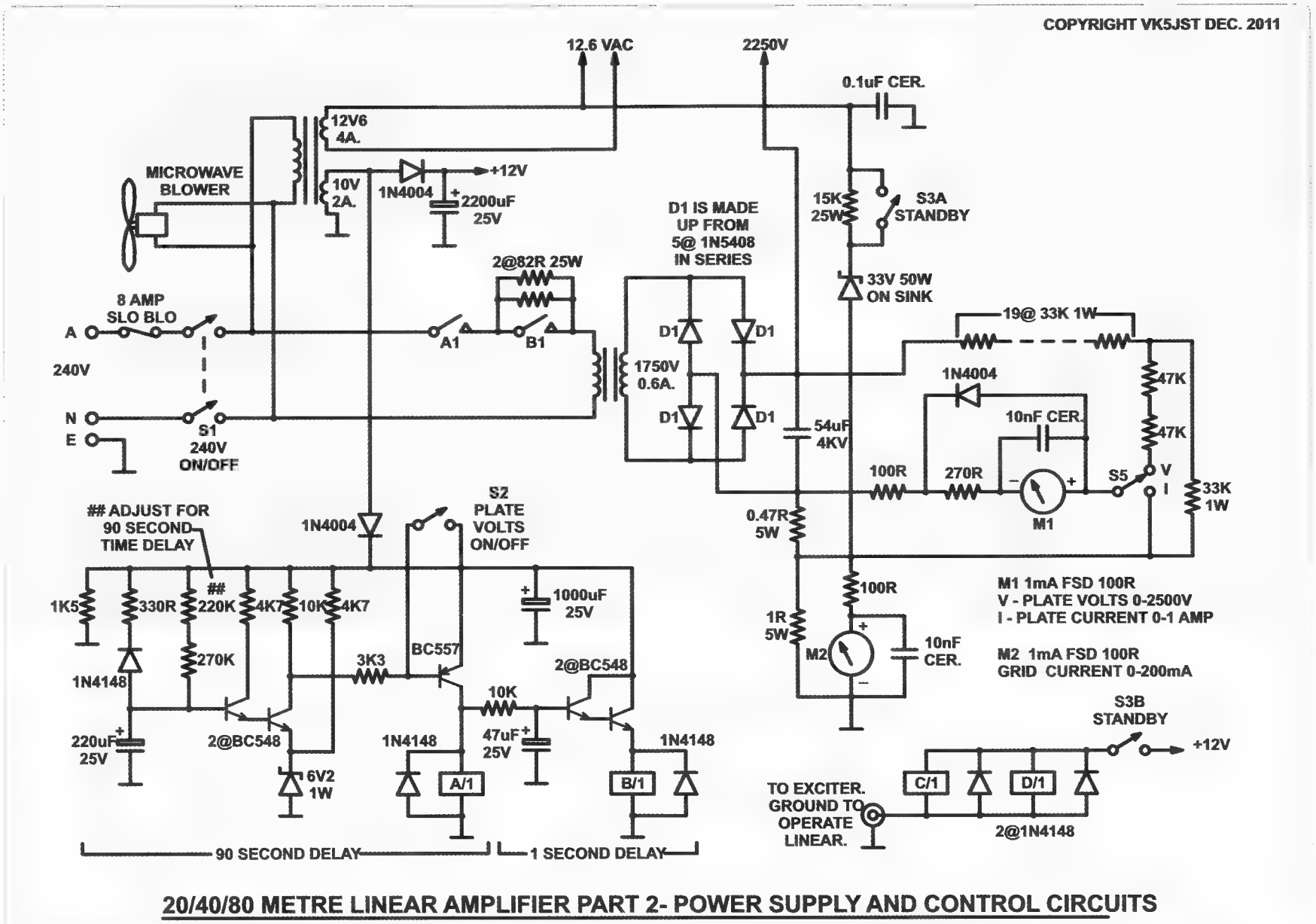


Figure 2: The power supply and control circuits.

The Published Design

After a lot of back and forth, I finally settled on the GI7BT triode as the basis of the design. These are a microwave triode offering around 14 dB of gain and are available very cheaply on the 'net. A brand new set of four can probably be obtained for around $100, providing two tubes for the amplifier and two spares. Sockets for these tubes can be very simply fabricated from scraps of fibreglass PCB and fingerstock, see Photo 1, or alternatively the real thing can be obtained on eBay.

A couple of these tubes carefully used will give at least 850 watts on HF. Unlike American military practice which generally uses specialist parts to do a particular job, Russian military authorities of this era were very conscious of the need to use general purpose parts, which in turn greatly simplified field service of military gear. The GI7BT is an excellent example of this philosophy with its primary application in tank borne radar. The T in the type number indicates the super rugged version of this tube developed for this brutal application. A less rugged but still very tough version is sold under the type number GI7B on the 'net. In its radar use as a pulse tube, 12 kV is applied to the anode.

When used in linear applications, the manufacturers recommend anode voltages of not more than 2400 volts DC. Unlike most common RF power triodes, there is thus a tremendous safety margin built in against internal tube flashovers. The fifty-watt series resistor normally included in the anode voltage supply line to limit current during flashovers can probably be quite safely omitted, which is another simplification and cost saving. Nonetheless, a sacrificial resistor of 0.47 ohm five watt rating has been included in the negative high voltage return line to provide some protection in this most unlikely event.

Yet another simplification has been the omission of ALC circuitry.

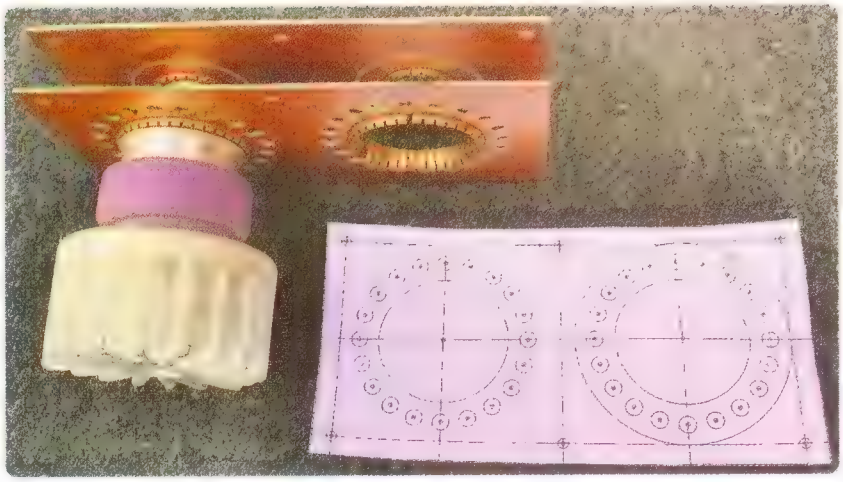


Photo 1: The socket.

A much better solution is to operate the amplifier and exciter intelligently in conjunction with a modulation monitor so that any overdrive is immediately visible and can be avoided. ALC does not necessarily prevent improper operation or the excessive production of spurious outputs.

Running through the power supply system first, at switch on power is supplied instantly to the blower and tube filaments. Without air, the tubes will rapidly overheat, but no protection system has been provided because the design is based on the KISS principle. Put simply, the operator has a pair of ears and a brain, and all common microwave blowers use shaded pole AC motors which are incredibly reliable. It is very easy to bury a linear design in an overly complex microprocessor based control system, which will probably do something stupid in the middle of the QSO which is getting you your 200th country.

Immediately power is applied, a 90 second delay starts which prevents high voltage being applied to the tubes before they have reached proper operating temperature. This prevents cathode material being ripped from the cold tube cathodes, completely ruining them. In the control circuitry, a 220 μF capacitor charges towards the 12 volt rail via a series combination of 220 and 270 k resistors, and when the voltage across this capacitor

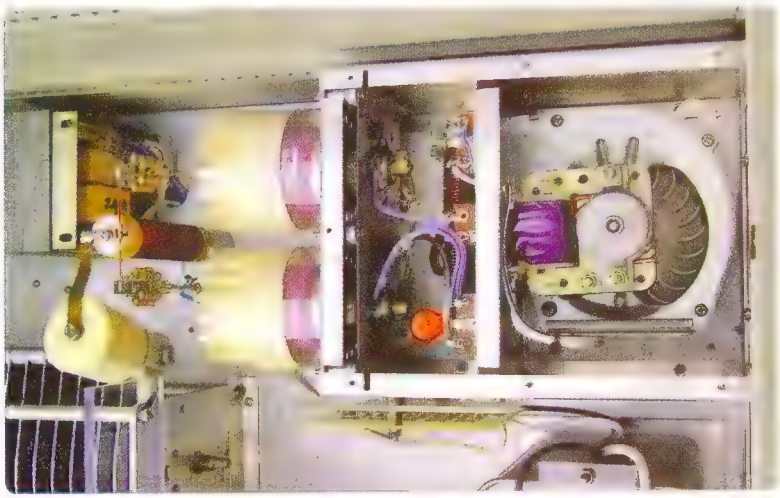


Photo 2: The GI7BT tubes in position.

reaches about 7.3 volts (after 90 seconds), the collector voltage of the second BC548 in the Darlington pair moves down from 12 volts turning on the BC557 and operating relay A. Relay contact A1 closes, applying 240 volts to the primary of the high voltage transformer via two 82 ohm resistors. This limits the surge current that can flow in the transformer secondary while the main 54 μF filter capacitor is charging up, giving a 'soft start'. When relay A operates, the full 12 volts appears across its winding and this voltage is then applied to the base of the second Darlington pair via another time delay circuit. It takes about six to seven volts to cause a typical 12 volt relay to work, and so the base of the second Darlington pair of BC548s must reach about seven to eight volts before relay B will operate. This takes around one second due to the 10 k resistor and 47 μF capacitor, at which point relay B operates closing the contact B1 and applying the full 240 volts directly to the primary of the high voltage transformer. Note that the high voltage can be switched on and off with S2, any time after the filaments have reached operating temperature, and that a 'soft start' will always occur. If S2 is left closed during start up, the filaments will warm up but no anode voltage will be generated until the operator chooses.

The rest of the power supply circuitry is quite simple. A 33 volt 50 watt zener diode sets the grid cathode bias of the tubes, ensuring that the cathode potential is 33 volts below ground and setting the no signal standing current through the tubes to about 40-50 ma. With the STANDBY switch open and the 15 k resistor which it normally shorts now in circuit, additional negative bias is then developed totally cutting the tubes off (about 1 mA of standing current). All metering is done at potentials very close to ground, meaning that you can fall against the front of the linear and break a meter face without the risk of electrocution. The voltage used to indicate anode current is derived across the 0.47 ohm five watt resistor in the negative supply line from the bridge through the zener diode to the tube cathodes. As pointed out previously, this resistor is sacrificial in the event of a tube flashover, as is the 100 ohm resistor in series with the meter, if the meter happens to be switched to monitor anode current. The voltage indicating anode voltage is derived across the bottom 33 k resistor in a chain of 20 such resistors. It is vital that this many resistors appear in such a chain. If manufacturer's specifications are consulted, the maximum DC voltage which should appear across a typical one watt resistor is limited to 250 volts. This produces intense electric fields along the length of the resistor which with time will actually cause the resistive material in the element to shift towards one end of the resistor, causing it to go open circuit. Another very substantial danger is the possibility of flashovers occurring between adjacent turns in the spiralling in the resistor element if too much voltage is applied. Once this occurs, extra stresses are applied to all the other resistors in the series chain, which in turn can lead to catastrophic breakdown of all resistors. For these reasons in this design the voltage across each 33 k is limited to around 120 volts DC. Finally, the grid current flowing during normal class AB2 operation (150 mA maximum) is monitored using the voltage developed across the one ohm five watt resistor in parallel with M2.

Turning now to the RF section of the amplifier, the first section worthy of comment is the pi input filters. Because the tubes are operating in class AB, for about half of each cycle they will be off, causing a cathode input impedance of infinity during this time. For the other half of the cycle the tubes will be on, conducting varying amounts of anode current as the half cycle progresses, and causing the input impedance at the cathode to vary wildly. Some energy storage system is consequently necessary to even out these hugely varying demands for energy from the exciter. Modern semiconductor rigs will not tolerate this form of abuse which shows up as high SWR, and will simply shut down to protect themselves.

The perfect energy storage system is of course a tuned circuit which can store up energy when the tubes are off and deliver it back when the tubes demand current (the flywheel effect). The pi section low pass filters fill this role and are designed to have an operating Q of between 1.5 and 2.5. This low Q provides a nice flat input response across each band while at the same time providing just enough flywheel effect to nicely smooth out the variable energy demands of the tubes and present the exciter with an SWR of less than 1.2. Trying to calculate the average input resistance over the cycle from the limited tube characteristics available proved very difficult indeed, but the calculations did get me into the ballpark. After some empirical optimization, the average input resistance at full power over the cycle turns out to be 110 ohms.

Note that the capacitors used in the filters are all silver micas. While the temperature characteristics of these capacitors are very good, these are not terrific components to use when high RF voltages and currents are around. I have had some very bad experiences with silver, which like the resistive film previously mentioned in the paragraph on one watt resistors, tends to wander about in the presence of high level currents and fields. For this reason, each capacitor used in the filters is fabricated from two silver micas of about equal value in parallel so that RF current flow in each capacitor is minimised. Finally the coils for the filters were made up from a few turns of 1.6 mm copper wire wound around those wonderful little ferrite rods which master scroungers can obtain from inside the steel filament enclosure of dead microwave magnetrons. These little bits of low loss ferrite (five mm diameter, 20 mm long) can be slid into each coil until a very low SWR is reached across each band and then locked into position with a dob of paint.

The position of the filters turns out to be vitally important too. Big pulses of anode current flow through the capacitors on the output side of the filter in use. If the filters are physically located far away from the cathodes which they drive, then the series inductance introduced in the connection between filter and cathodes can badly reduce the drive available at higher frequencies, dropping the power output. This is the reason that the output capacitors of the 20 metre filter are located right at the tube cathodes. This underhand dodge allows the filter PCB to be located outside the tube enclosure and be connected to the cathodes using a short length of coaxial cable without loss of output.

The last part of the circuit is the tank section. The switching here could have been dramatically simplified if I had been able to source a 400 pF variable capacitor with two mm or more plate spacing. But I had the 250 pF unit, so it got used. The tank coil is the first thing to comment on. After some careful calculations using the tube plate characteristics downloaded from the 'net, I settled on a plate load resistance of 1950 ohms, which turned out (amazingly) to be spot on. Normal design practice is to design the tank system for an operating Q of about 12, but this has no bearing on the unloaded Q required for each tank coil. In fact there is no such thing as an unloaded Q which is too high for these coils. The lower the loss the better, and the acid test is that at full power, the coils do not get hot. Having previously fabricated coils from six mm diameter copper tube, there had to be a better way. At 80 metres and these power levels, efficient coils can be made from bare copper wire 1.8 mm diameter (available as single core 2.5 mm square millimetre mains earth wire at your local Bunnings), and as the frequency moves up, heavier copper conductors will be needed to minimise skin effect losses.

Photo 4: The back panel of the amplifier.

As I have a lathe, the solution to this was to cut a double start thread of 4 TPI (my lathe is Imperial) with a semicircular thread cross section on a piece of 60 mm diameter plastic sewer pipe so that both strands of copper would lie side by side and just touch. This approach allows parts of the coil to be made up from a single conductor, two conductors, or three conductors by stacking to form a triangular shape. It works very nicely, and is very much easier to wind and solder than a piece of 6 mm diameter tube AND the material is readily available in the length you want. The entire tank coil comprises 19 turns. I settled finally for 14 turns of two wire conductor and five turns of three wire conductor. The entire coil of 19 turns is used for 80 metres, with taps at five turns for 20 metres (the three wire section), and 11 turns for 40 metres. In fact it would have been better to just make the entire coil up as a three wire animal.

Setting up the tank system was a snap when an antenna analyser was used. First, all power was turned off and the analyser was connected to the amplifier output. With the tubes in their sockets so all stray

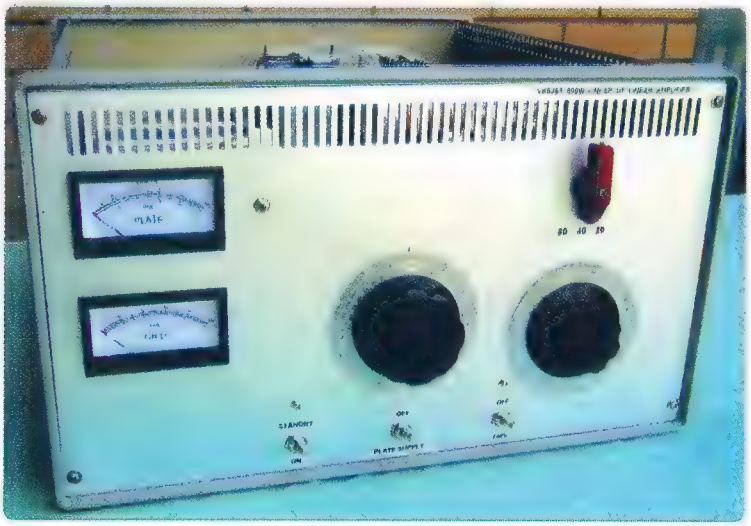


Photo 3: The front panel of the amplifier, showing metering and switching controls.

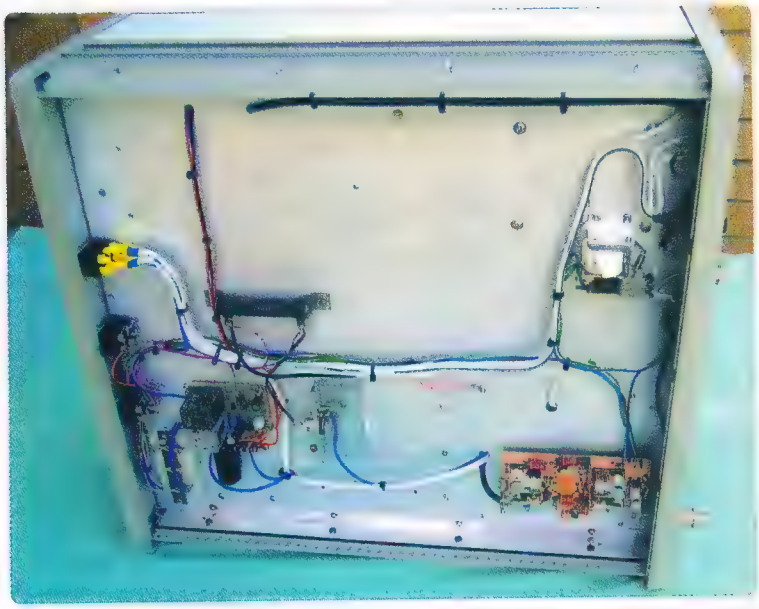


Photo 5: The internals of the amplifier viewed from 'underneath' the amplifier.

capacitances were present and correct, a physical resistance of 1950 ohms (with short leads) was connected between the plates and ground. It was then just a matter of adjusting plate tuning and loading capacitors and the coil tap at the centre and ends of each band until a pure 50 ohm resistance was seen on the analyser. Of course, calculations had to be done so that approximately the right amount of capacitance and inductance was there initially, but the whole process for optimising the tank circuits for three bands took just 20 minutes and very closely confirmed the calculations.

The last item is the RF plate choke. K.R. Sturley's old but magnificent book 'Handbook of Radio Receiver Design' Book 1 has a section in it which allows the resonant frequencies of single layer RF chokes to be accurately estimated and this was used to select 100 μH as the value. The choke was wound using 153 turns of 0.5 mm diameter copper wire on a Delrin rod former 20 mm diameter with the winding ending up 86 mm long.

That's it. Proceed very carefully if you are going to build something at home. You have been warned. It is your life and your responsibility and there are simply no excuses. Use the very best safe working practices so you are alive and can brag to your mates about what you did ...

Photo 6: Last, but certainly not least, a view of the inside of the amplifier, highlighting the neat, very functional but nonetheless minimalist approach of the design.

AMSAT

David Giles VK5DG
vk5dg@amsat.org

The 2012 AMSAT-UK colloquium

The 2012 AMSAT-UK colloquium was held from the 14th to 16th of September. Here I present details of some of the presentations given.

The British Amateur Television Club provided live streaming of the event over the Internet. Fifteen of the presentations are available for download from their website [1]. To view these click on 'Film Archive', select 'AMSAT 2012' in the category box and click on 'Select category'. Select one of the presentations in the 'Stream' box and click on 'Select stream'. Then you have a choice of watching the presentation on the flash box provided or downloading it. The file sizes vary from 72 to 190 MB.

AMSAT-DL news

Probably the biggest news item of the colloquium was presented by Peter Guelzow DB2OS. The news was not good in that the German Space Agency DLR had finally rejected the P5A/Mascot-2 mission. P5A was to be AMSAT-DL's first interplanetary mission. The original destination was Mars but a later proposal was for a lunar mission – as it turns out there isn't much difference in cost, just travel time. The later addition Mascot-2 was a robotic lander that would have been put on Mars' moon Deimos. In his 45 minute presentation Peter goes through the roller coaster ride of negotiations between AMSAT and DLR. But this will not mean the end of AMSAT-DL or the P3E mission. P3E is mostly built and AMSAT-DL are still in negotiations for a launch. Currently they are in talks with the Chinese Space Agency. AMSAT-DL is still daily using their 20 metre dish at Bochum to get telemetry from NASA's twin solar observatories STEREO. Another project they are currently investigating is an amateur payload for a geosynchronous satellite. Their current design has a 2.4 GHz uplink with downlinks on 10.5 GHz and 24 GHz as well as a beacon on 76 GHz. Antenna space on the satellite has become the biggest problem so far. I would have thought getting enough transmitter power on 76 GHz to be heard 36000 km away would have been a challenge. If it happened then the transponders would only be useful over Europe, maybe only over Germany.

AMSAT-SA news

Hans van de Groenendaal ZS6AKV gave a presentation focussing on a new 1U cubesat called KLETSkous (Afrikaans word for 'Chatterbox'). The aim of KLETSkous is to provide a LEO satellite that would be more accessible to amateurs in southern Africa. One problem with Sumbandilasat SO-67 was that whenever it was over southern Africa the main payloads were in full use and the amateur payload was rarely turned on. Amateurs in other parts of the world had far more access. KLETSkous is at the early stages of design but will probably have a mode U/V linear transponder (though FM is also likely) with a 20 kHz bandwidth. A proposed scientific experiment uses a high power LED on the satellite but this is still only at the design stage. He also described how one amateur has provided a prototype aluminium spacecraft frame for KLETSkous he built in his garage workshop. Another option for KLETSkous is that the transponder may become a payload for a government satellite.

UKube-1 news

UKube-1 is a demonstration satellite being produced for the UK Space Agency. It is a 3U cubesat incorporating four scientific payloads, three deployable solar arrays, two transponders and a high speed 2.4 GHz transmitter. One of the transponders has been supplied by AMSAT-UK and is a copy of the one that will be used on FUNCube (it will be known as FUNcube-2). Steve Greenland of Clyde Space (the main constructor) gave a presentation of UKube-1's progress and to announce that it will be launched in March 2013 on a Soyuz 2. The four main payloads are TOPCAT (using GPS to measure plasma-spheric space weather), JANUS (random number generator for encryption using space radiation), C3D (CMOS radiation damage monitor) and MPQ442 (myPocketQube pico satellite) [2].

AMSAT-UK news

Graham Shirville G3VZV gave a very quick rundown on other projects in which AMSAT-UK is participating. There has been the proposal of an amateur television package put on the ISS for some time. Graham outlined how AMSAT-Italia are now helping to develop a digital television transmitter on 2.4 GHz with an output around 10 watts that will use the antennas on

the Columbus module. It may also have a 2.4 GHz beacon and a FM repeater. Other projects include another cubesat for an ESA launch, getting more allocation on two metres for the UK, and involvement with other university projects in Europe.

FUNcube-1 update

Members of the FUNcube team gave an update on FUNcube – AMSAT-UK's 1U cubesat. Graham Shirville G3ZVZ started with the progress of the satellite. It is nearly flight ready as it was expected to be launched in September 2012. Now it is expected to be launched early in 2013. Jim Heck G3WGM then gave a talk on the DNEPR rocket. The DNEPR is a converted intercontinental ballistic missile that is launched from an underground silo. It is ejected from the silo by an explosion of steam and only fires its motors when clear of the silo.

Graham came back on with a live demonstration of the engineering stack (bare circuit boards fed from a power supply and transmitting into a dummy load) and the 'dashboard' ground station software. This was to show what to expect in your shack when FUNcube-1 is in orbit. FUNcube has two modes-telemetry and transponder. The telemetry mode will be mainly used during daylight hours when FUNcube-1 will be available for education institutions and transmitting telemetry at 300 mW on two metres. At night (or on weekends, or when requested) the U/V linear transponder will be turned on for amateurs. Telemetry will still be transmitted but at a much lower level (probably 50 mW). The demonstrated dashboard software (currently written for Windows but will be made open source) showed the current telemetry values received, and a spectrum display for tuning. Clicking on a telemetry value will bring up a trend display so you can see how the satellite is behaving throughout the pass.

Other presentations

These range from activities at SSTL and AMSAT-NA, satellite missions such as STRaND-1 and STRaND-2, a new FUNcube dongle receiver, and applications for Android phones and tablets.

Final Pass

Another successful colloquium showing current and future missions as well as the things that go on behind the scenes to get satellites built and into space.

References

[1] *www.batc.tv*

[2] *http://www.uk.amsat.org/10497*

AMSAT-VK

AMSAT Co-ordinator
Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator
Judy Williams VK2TJU
email secretary@amsat-vk.org

Website
www.amsat-vk.org

Group site:
group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.

AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater:146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

VK3 news Amateur Radio Victoria

Jim Linton VK3PC
e *arv@amateurradio.com.au*
w *www.amateurradio.com.au*

Michael J Owen VK3KI – SK. Michael was at the microphone making the first of many calls from the special callsign VK100WIA.

Vale Michael J Owen VK3KI – SK

Michael died suddenly on 22 September, aged 75. He has left behind a worldwide legacy to amateur radio.

A life-long contribution included founding an amateur radio club at the University of Melbourne where he studied law, the early space exploration days at RMIT (that carried through the years by leaving us out of the need for costly satellite frequency coordination), a WIA Victorian Division Secretary and Federal Councillor, WIA President, and vast IARU work.

He authored the WIA Federal company constitution in 1972 that assumed responsibility from Victoria for *AR* magazine and the membership database, among other things.

On his return from overseas, he constitutionally changed the WIA from its federal structure to one of a national body in 2004 and at the same time presided over the changes to our licensing and assessment system.

He will be sorely missed. His enormous experience and adept skills are irreplaceable. We have lost someone who made a truly remarkable difference to amateur radio here and overseas.

The Council of Amateur Radio Victoria expresses its condolences to his family and friends.

Education record shows success

With 40 assessments in the past 12 months, we continue to show some leadership in the activity of education with the final Foundation licence weekend for 2012 to be held this month.

Although down on earlier years, we have held a regular series of weekend courses on the Foundation licence which includes quality instruction on the Saturday, followed by a written 25 question paper and a practical test on Sunday. Through those classes we have had 20 candidates found competent at both the written and practical elements, and helped them to get their own Foundation licence.

We also held a Bridging Course to take those with the beginner's licence qualification up to the Standard licence. Through that course we had eight individuals advance to the Standard level, four to Advanced and eight Regulations assessments completed.

Thanks go to the instructors Kevin Luxford VK3DAP/ZL2DAP and Peter Cossins VK3BFG, the regular WIA Assessors Barry Robinson VK3PV, Terry Murphy VK3UP and Jim Linton VK3PC, with help from Ross Pittard VK3CE and John Fisher VK3DQ.

Enrolments are closing soon on this final Foundation licence weekend for 2012, which will be held at the centrally located **Amateur Radio Victoria office at 40G Victory Blvd, Ashburton** on **November 17 and 18.**

To enrol or obtain the Foundation licence study and

operational practice guide book contact the Education Team Leader Barry Robinson VK3PV on 0428 516 001 or *foundation@amateurradio.com.au*

Special KRMNPA weekend

The regular gang plus, hopefully, some new portable operators are ready to venture out into the Victorian National Parks for what promises to be an excellent opportunity this month to activate some of those areas.

The special VK3 National Parks Weekend is November 16 through to 18. The Keith Roget Memorial National Parks Award Manager Tony Hambling VK3VTH has created a master list of activations and welcomes more entries. The master list so far has the National Parks at Heathcote-Graytown, Barmah, Gunbower, Terrick Terrick, Kinglake and St Arnaud.

If you intend to be in a National Park at the time then get listed on the Amateur Radio Victoria website *www.amateurradio.com.au* which contains the rules and endorsements.

Speaker meeting upcoming

Council has introduced quarterly meetings giving the members the opportunity to ask questions of the Council representatives present, learn more about some of the activities being undertaken and listen to expert speakers on various topics.

At the next meeting at 8 pm on Tuesday November 13, the topic is 'Demystify SWR' by presenter and educator Peter Cossins VK3BFG and is sure to be very interesting.

Centre Victoria RadioFest

The Centre Victoria RadioFest will be at the Kyneton Racecourse on Sunday February 10, 2013. Can you be involved with the many set-up tasks from early on the Saturday? Then contact Ross Pittard VK3CE on 0408 533 107, who is handling all inquiries.

The Club Corner Liaison is Tony Hambling *vk3vth@amateurradio.com.au* and details of the program will progressively appear at *http://radiofest.amateurradio.com.au*

History detail being sought

The grandson of Herbert William Maddick 3EF of Elwood, also known as 'Cockatoo Maddick' is being researched. Some members may remember him and his radio exploits.

Andy Maddick has found a reference to the relative, who died before he was born, in a July 1923 edition of The Australian Wireless Review. Working from a poor photocopy of the article he has started to piece together a bit of the history. Missing from the copy is a picture taken on the 'Bulla' in the winter of 1916, at Cardiff in Wales, Great Britain.

If you can help Andy with any information he can be contacted by email at *oxyandy@gmail.com*

The ARV website is at *www.amateurradio.com.au* and the email address is *arv@amateurradio.com.au*

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The September meeting of AHARS was addressed by David VK5DGR. He has been involved for a number of years in developing a system of voice communication for amateurs that is based on a type of VOI protocol. To this time, all VOI systems are expensive to buy. As David pointed out most of the protocol is open source but the small part that is proprietary is where the cost is involved. David and the team with which he works is close to developing an open source that will be available to amateurs at no cost.

For his work to this date, David was presented with an ARRL Innovation Award recently which suggests that his approach to the VOI is new. The team's approach is compressing the frequency range of the voice so that it can be transmitted at just 300 bits per second without loss of intelligence. They are trying a number of different methods to achieve this, all of which David demonstrated for us. It was interesting to hear the differences and to realise how little of the original sound needs to be transmitted.

A special modem, of the FDMDV type, has been developed. Once the system is up and running, it will be able to be used with SDR and will effectively give us voice in an FSK type transmission.

They are already testing an HF digital voice system and are working on the VHF version. A very interesting, and thought provoking talk. Amateur radio still has areas open for experimentation.

During the JOTA weekend AHARS operated a station at our Shack at which some of the Girl Guides were involved.

For the last Saturday (as this month has five Saturdays in it), there will be a breakfast and auction at the Shack. The contents of the auction will include items from several recent shack clearances and SKs.

ALARA

Margaret Blight VK3FMAB – Publicity Officer

Photo 1: The Deans Marsh PPP location – with antennas at the ready.

Over the past few months I have been going through the process of preparing my house for sale, purchasing a new property and finally preparing to move in. During the early preparation stage, my helpful handymen decided to remove the wires and poles at the rear of my house; unfortunately this resulted in taking me off the air as they had not realized it was my radio aerial. So I am looking forward to being able to operate again when I move into my new home. I have had offers of assistance from radio club members to help me set up at the new address: offers which I will gratefully accept.

At present, I can visit a friend and speak on the ALARA Net on her radio and I can still participate in the monthly ALARA committee meeting which is now on EchoLink. I know this is regarded by many as not really radio, but for the purpose of the meeting, it is wonderful to be able to have a clear conversation with members from Queensland, New South Wales, and other distant States, when previously it could be impossible to hear what someone was saying and there would need to be a relay of the conversation from an operator who might catch some details and would try to pass the information on to others.

Propagation Party

On Friday morning 31st August, nineteen radio enthusiasts, including myself, set off for a weekend at King Parrot Cottages in the beautiful Otway Ranges. The event was known as the Pennyroyal Propagation Party. Planning had been underway for a number of weeks beforehand, the location had been thoroughly investigated and declared most suitable, supplies of food and drink had been purchased and we were all looking forward to an enjoyable and productive experience.

We occupied two of the dwellings on the 27 acre site, The Lodge and Manna Gum Cottage. The Main lodge was the centre of activities. Shortly after arrival aerials and radios were unpacked and assembling commenced. Everyone joined in to establish the stations. Within a short period of time all was ready to go on the air.

While aerials were being set up and tested, the food supply was being unloaded and packed into refrigerators. It looked like we had enough to feed an army, so no-one was concerned about there not being enough to eat. Nourished by a hearty soup for lunch, everyone stepped in to get the operation underway.

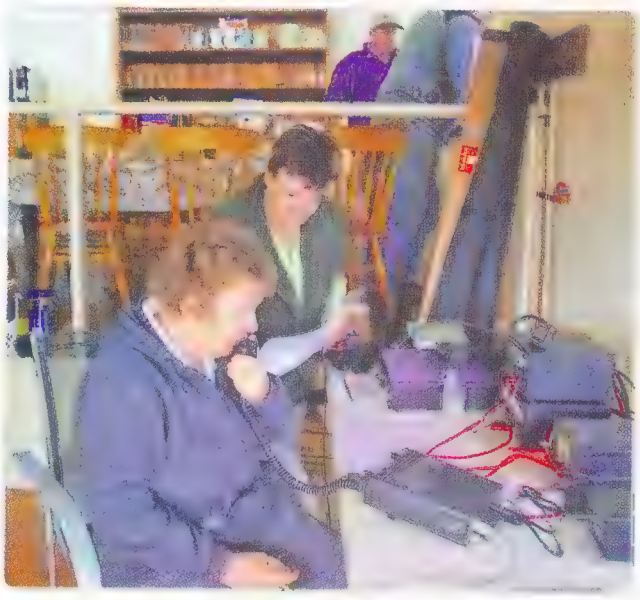


Photo 2: Jean VK3VIP and Jenny VK5FJAY at the operating position.

Photo 3: The Pennyroyal Propagation Party participants.

The station operated on most HF frequencies from 160 through 10 metres and on both six and two metres, and 70 cm with contact to the Melbourne area via the Geelong two metre repeater. All operators participated including Jean VK3VIP and Jenny VK5FJAY.

Luke VK3HJ was our main CW operator. It was hoped that a link could be made to the VK3RTV repeater from a nearby high point but unfortunately this failed to eventuate. The weather was all we could hope for. Cool at night so we could appreciate keeping warm with fires and heaters, but during the day the sun managed to shine and the sky remained clear. Those who did not have accommodation in The Lodge were located at nearby Manna Gum Cottage. From The Lodge the view was overlooking a large valley. There were many sightings of kangaroos and a wide variety of bird life. There were also domestic animals to observe, including alpacas and horses and our very own companion animals, Taro and Carlos, two canines who accompanied their respective owners and became very much a part of the scene.

Radio reception was excellent. The DX was plentiful and at times there were even dog piles into Europe on 17 metres. I was fortunate to speak with a couple of Japanese operators who were participating in a Pacific contest. I was interested to note that instead of using H-Hotel as we do, they say H-Honolulu so we had a little confusion over that.

Monday morning came too soon and we reluctantly ended our stay and began the journey home satisfied that we had enjoyed the weekend thoroughly.

VK3 News

ALARA President Jean VK3VIP manned the ALARA table at the Shepparton hamfest in September. Jean said there was a lot of interest and she managed to sell a few items as well as speaking with people. She also met up with Monica VK3FMON and Heidi VK3FHID from the Midland Radio Club. There also was interest shown by prospective ALARA members who were studying for their Foundation licence.

VK3 ALARA luncheon

On Saturday 29th September there was a gathering of ALARA members and OMs for a congenial lunch which was held in a restaurant in Pinewood. It was good to meet up with people again, some of whom had returned from trips abroad, and a number of stories were told so we could all catch up on the news.

VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

Photo 1: Lee VK3PK introducing the ILLW.

Photo 2: Ken VK3NW operating the station at Point Lonsdale.

Photo 3: The campsite as set up over the weekend near the Point Lonsdale Lighthouse.

Point Lonsdale ILLW

Prior to the address the Point Lonsdale lighthouse gave a long burst on its 'fog horn'. Lee VK3PK then gave an address to the attendees on behalf of the Geelong Amateur Radio Club (GARC).

The GARC were again pleased to have the cooperation of the Borough of Queenscliffe and Ports and Harbours which has considerable maritime infrastructure in the Port Phillip Bay region.

During the weekend, the GARC logged over 200 contacts, mainly on the 80, 40 and 20 metre bands working 30 lighthouse stations throughout Australia and New Zealand, including one ship at sea whose radio operator also operates an amateur radio station. In addition the GARC also worked on two metres, D-STAR and IRLP. Further details of this and previous years operations of the Lighthouse weekend can be found at *http://illw.net*

Those in attendance were Lee VK3PK, Vanessa VK3FUNY, Gary VK3FWGR, Nik VK3BA, Dallas VK2DJ, Ken VK3NW, Lou VK3ALB, Jenny VK3FJEN, Michael VK3FMIC, Jarrod VK3FJDD, Craig VK3VCB, Kevin VK3FKEV, Russell VK3KRS and VK3BFR.

Those interested in amateur radio are welcome to visit the Geelong Amateur Radio Club. Further information may be found at *http://www.vk3atl.org*

DX-News & Views

Luke Steele VK3HJ & Chris Chapman VK3QB
vk3hj@wia.org.au & vk3qb@wia.org.au

September and October on the bands

The Spring Equinox has seen conditions steadily improving, with activity on all bands looking up. Mornings have seen some activity on 15 metres to north and central America, 12 metres and 10 metres to the Pacific and north America. The higher band activity has continued through to early evenings to Asia and Europe. For the Night Owls, look towards Europe on the short path on the 20, 17 and 15 metre bands, which have been opening quite well after midnight. Anyone still up will be rewarded with much interest from European operators.

There have been no major solar events though September, but we may see some activity in October. Solar flux and sunspot numbers have been fairly low again, but as always we live in hope of an increase! One must not simply look at 'bad numbers' and not bother to turn the radio on. Often some quite interesting DX can be missed by making assumptions.

The Swains Island DXpedition (NH8S) filled the bands for ten days in September. The team made an amazing 105,517 QSOs! In fact, the team went QRT a couple of days early, due to fatigue and a few minor health concerns. The American operators are now back home and the European operators chose to spend a few more days relaxing in Pago Pago, with some radio operations from there also.

Over 100 VK operators made it into the log, with multiple QSOs.

The not quite yet Republic of Kosovo was activated by some prominent European DXers in September. There has been very little activity from Kosovo for over 23 years, as there was much conflict in the region, and many of those former YU8 operators had their equipment confiscated during this time. Eleven resident former amateur operators were issued new licences, in a ceremony televised on the evening news.

The purpose of the trip was to re-establish administrative systems for amateur radio infrastructure similar to other IARU countries, to establish an amateur radio society for all Kosovar radio amateurs, to train new licensees, and to have in place a robust society to eventually apply for membership of the IARU. Whilst Kosovo is not yet recognised by IARU, or ARRL for DXCC purposes, it does count for the Worked All Europe award and contest, and the CQ DX Marathon.

Date	Call	QSL via	Info
26 Oct – 4 Nov	5V7TH	LOTW	Togo, ON4CIT, 40 – 6 metres.
27-31 Oct	P29NI	G3KHZ	PNG IOTA, Tatau I, OC-099.
1-9 Nov	ZL7A	LOTW	Chatham I, OC-038, JF1OCQ, 80 – 6 metres.
2-4 Nov	P29VPB	G3KHZ	PNG IOTA, Lihir I, OC-069.
3-10 Nov	YJ0AFU	NA5U	Vanuatu, OC-035, 160 – 6 m.
5-19 Nov	VP2M	DL7AFS	Montserrat, NA-103, 80 – 10 m, RTTY, PSK, SSB.
5-22 Nov	5Z4/SM1TDE	LOTW	Kenya, 40 – 10 m, CW.
6-9 Nov	P29VCX	SM6CVX	PNG IOTA, Buka I, OC-135.
9-12 Nov	P29VCX	SM6CVX	PNG IOTA, Manus I, OC-025.
9-17 Nov	PJ4/PE2MC		Bonaire, PE2MC using Radio Nederland array.
9-17 Nov	3A	M0URX	Monaco, 3A/ON5UR, 3A/ON8AK, 80 – 10 m
10-22 Nov	PT0S	LOTW	St Peter and St Paul I, 160 – 6 m.
11-23 Nov	V84SMD	LOTW	Brunei, OC-088, Mediterraneo DX Club.
12-14 Nov	P29VCX	SM6CVX	PNG IOTA, Loloata I, OC-240
17-27 Nov	VK9	Home call	Lord Howe I, OC-004, VK9/OH1VR, VK9/OH3JR, 160 – 6 m.
18 Nov-8 Dec	E51TLA	LOTW	South Cook, Rarotonga I, OC-013, OZ6TL, CW, RTTY.
21 Nov-3 Dec	VP2V	LOTW	British Virgin Islands, NA-023, N3DXX, AA7V.
23 Nov-3 Dec	7P8D	LOTW	Lesotho, 160 – 6 m.
24 Nov – 10 Dec	5T0SP	LOTW	Mauritania, Polish Dxpedition, 160 – 10 m
28 Nov – 9 Dec	ZL9HR	EB7DX	Auckland and Campbell Islands, *http://www.campbell2012.com/*
- 15 Dec	5H3NP	WB0VGI	Tanzania, Noel WB0VGI, 30 – 10 m, CW/SSB/PSK

At the time of writing, the 3D2C Conway Reef expedition is in full swing, with massive pileups and good propagation. One point of concern is the callers in the pileup spreading out over the top edge of 17 metres in particular. Emissions must remain below 18.168 MHz. That means the upper sideband of a transmitter with VFO set much above 18.165 MHz will be transmitting out of band. Also noted were a couple of VK operators transmitting 5 kHz above our band limit of 3.800 MHz.

Some upcoming DX operations

The table on page 36 summarises some of the DX activations that may be of interest to VK operators.

5V7TH **Togo**. Wim ON4CIT will be active from Togo, west Africa until 4 November from 40 – 6 m. He specifically requests use of the International Phonetic Alphabet when using SSB. QSL via ON4CIT direct/bureau, and LoTW.

P29, **Papua New Guinea.** The IOTA DXpedition continues, with the team activating Tatau, Lihir, Buka, Manus and Loloata islands. See the website for full information. *http://p29ni.yolasite.com/*

ZL7A, **Chatham I**. Hiro JF1OCQ will be activating the Chatham islands between 1-9 November. He will be operating 80 – 6 metres, CW, SSB and digital mode, with emphasis on 80 and 6 metres. He will have a beacon on 50.117 MHz around the clock.

YJ0AFU, **Vanuatu**. Daniel VK4AFU will be operating from Port Vila from 3-10 November. He will be operating mainly JT65A on 80-10 metres with a little on 160 metres. Six metres will be his priority when open, mostly CW and SSB, with JT65 on request. QSL via NA5U.

VP2MYL, VP2MGZ **Montserrat.** DL7AFS Babs and DJ7ZG Lot will be operating as VP2MYL and VL2MGZ respectively from 5-19 November. They will be on 80-10 metres mainly in RTTY, PSK and SSB. QSL via DL7AFS.

5Z4/SM1TDE, **Kenya**. Eric SM1TDE will be operating 5-22 November from Diani Beach, Mombasa on 40 – 10 metres. CW. QSL via SM1TDE or LoTW.

PJ4/PE2MC, **Bonaire**. Marco PE2MC hopes to use the Radio Nederland antenna in Bonaire, 9-17 November.

3A, **Monaco**. Max ON5UR and Marc ON8AK, after months of work and hundreds of phone calls, have organised a base for their DX trip to Monaco. They will be using the callsigns 3A/ON5UR and 3A/ON8AK, running SSB only, from 80-10 metres, 9-17 November.

PT0S, **St Peter and St Paul I**. A reconnaissance trip was made to survey the site for operating positions and RFI. The Rocks are barely above water, and most of the level spots are already occupied by the scientific station's equipment. This will be a very difficult activation. See the website for information. *http://pt0s.com/* 10-22 November, pending the forces of Nature. Good luck with working this one!

V84SMD, **Brunei**. Members of the Mediterraneo DX Club and the Gemilang Radio Club will be joining together for a DXpedition in Brunei Darussalam OC-088, 11-23 November. They will be operating from 160 – 6 metres with CW, SSB and RTTY. They will be focusing on WARC and low bands, and RTTY.

VK9, **Lord Howe I**. Seppo OH1VR and and Henri OH3JR will be operating from Lord Howe Island from 17-27 November. They will be on 160 – 6 metres, CW, SSB and RTTY, and will be participating in the CQ WW CW contest. QSL via home calls.

E51TLA, **South Cook I.** Henrik OZ6TL will again visit Rarotonga. Look for him 18 November to 8 December on CW and RTTY.

VP2V, **British Virgin I.** AA7V Steve and N3DXX Art will be operating in the CQ WW DX CW contest. QSL via LoTW or NR6M direct. No bureau cards.

7P8D, **Lesotho.** ZS2DL Donovan will lead a team of South Africans, Germans and Americans, to activate the Kingdom of Lesotho, 160 – 10 m, CW, SSB and RTTY. They plan to run three stations 24/7 from 23 November – 23 December. QSL via LoTW or OQRS. See their website: *http://www.zs2dl.co.za/7P8D.html*

5T0SP, **Mauritania**. Plans continue with this west African activation between 24 November and 10 December. See their website for further information. *http://5t0sp.dxing.pl/*

5H3NP, **Tanzania.** Look for Noel WB0VGI until 15 December. He plans to be operating from Iringa on 30 – 10 metres using CW, SSB and PSK. QSL via home call.

VK0JJJ, **Mawson Station, Antarctica**. Craig VK6JJJ will be spending 12 months at Mawson from January 2013. He plans 80 – 6 metres operation, with priority to 6 metres. Modes will be SSB and digital. A 6 metre propagation beacon is also planned. See QRZ.com for further updates.

To finish, here is an update on the ZL9HR **Campbell I** expedition, from VK2ARE Ed Durrant, Publicity Officer for ZL9HR.

Fifteenth most wanted DXCC location entity – Campbell Island will soon drop down the charts as many, many radio hams work ZL9HR between November 28th and December 9th. Campbell Island is at IOTA OC-037 600 km south of New Zealand in the Great Southern Ocean. While the equipment makes its way down to New Zealand, I wanted to highlight some essential parts of the DXpedition organisation that are not always obvious.

DXpedition 'Pilots'

The 'pilots' are assigned. For Europe it's Col MM0NDX, for Australia and New Zealand it's Peter VK2NN, for Africa it's Andre V51B, for the Pacific region Stan KH6CG is doing the honours and last but not least we have Richard KY6R in western USA.

For those who haven't come across pilots before, they act as a conduit between amateurs trying to contact the DXpedition and

the DXpedition leaders. The pilot doesn't play God - but is a faithful 'technical support agent' whose boss is the leader of the DXpedition. The pilot may tell the DXpedition that he is receiving a lot of requests for a particular mode or band from a certain area of the world and if justified, the DXpedition may look at changing planned operations to fit this need as much as they can. Pilots often have to put up with abuse from idiots. It's not an easy job! Pilots are volunteers and form another part of the DXpedition that is crucial to its success. All amateurs owe a vote of thanks to the pilots of this and all other DXpeditions for the work they kindly perform. So if you communicate with a DXpedition pilot, show them some respect – remember they don't have to do this work!

Please refer to the web site ZL9HR.COM for the full, up to date, information about the major ZL9HR DXpedition to Campbell Island.

Special thanks to the authors of The Daily DX, 425 DX News, DX World and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from *www.dailydx.com/trial.htm*

As all amateurs will know by now, it is with great sadness we hear of Michael Owen's VK3KI passing. We extend our condolences to his wife Nan and the family, and on behalf of amateurs all around the world we gratefully acknowledge Michael's lifelong passion and support for amateur radio. We especially note his contribution to the IARU and WARC 1979 where his efforts in no small way gave us access to three (new) bands we now take for granted. Vale Michael.

VK3news Sunraysia Radio Group September Meeting

John Sutcliffe VK3TCT

A top day was held mid-September at the home of Terry VK3ATS and Jill VK3FJSP for a homemade 'pizza' afternoon with much socialisation, all members enjoyed themselves and a sale was held of second hand equipment. The sale went well as members were noted loading their vehicles with their bargains. Mid-afternoon a raffle was held and I believe Jill won the prize.

The Sunraysia Radio Group (SRG) annual general meeting in May saw a change in the group executive, Max VK3ZMT was elected President, Jill VK3FJSP Secretary and John VK2AWJ Treasurer. The new team is settling in well and Max has some good ideas for our club as:

- Bringing Swan Hill members closer to our main group.
- Technical lecture evenings in the 'Sid James' hut to make better use of that facility.
- We should attend 'Kyneton' hamfest as a group and set up a second hand stall.
- Cameron one of the younger members has installed a ten metre beacon locally and has verified reception reports from the US.

Photo 1: Ray (VK3HSR) selling the gear.

The SRG is integrating well with the local Scouts several are training for their Foundation licence, currently six candidates are being trained for the foundation licence and Max expects eight to sit for the exam in October 2012.

Altogether a good start for a new year and we look like having a growing membership; well-done team.

Photo 2: Terry (VK3ATS) grabbed the money instead of the ticket.

VK4news CQARA

Ray Dobinson VK4HOT
Vice President

Photo 1: The CQARA QSL card.

Photo 3: Les Berryman VK4QI being presented with the club's second life membership by Andrea Williams VK4FROG, the club President, at our annual dinner at Weasel Park.

Photo 5: The life membership certificate presented to Les Berryman and his wife June.

Photo 2: Part of the donation made by Les and his wife June for Weasel Park for the enjoyment of club members. It is still work in progress to establish two bedroom bunk house at Weasel Park.

Photo 4: Our first Life Member Jack Chomley VK4JRC being presented with his life membership certificate by our club President Andrea Williams VZK4FROG.

VHF/UHF - An Expanding World

David Smith VK3HZ
e *vk3hz@wia.org.au*

Weak Signal

There has been a bit of tropo action during September. The weather in Melbourne has been up and down like a yoyo – summer one day and winter the next. However, we've had some good high-pressure cells pass over giving good radio conditions.

On the evening of September 8th, conditions were good from Adelaide into eastern Victoria with Phil VK5AKK and Peter VK5PJ hearing the VK3RGI beacon on 70 cm for an extended period. The following morning at 1000Z, Bill VK5ACY worked Joe VK7JG on 2 m at 5x5 over a path of 980 km. They repeated the contacts on the 14th (5x1) and 15th (QSB up to 5x9).

On the afternoon of September 28th, Bob ZL3TY reported hearing the Newcastle Channel 5A TV at 5x7. At 0800Z, he worked Steve VK2ZT (5x9+) and Ross VK2DVZ (5x7) on 2 m. They then switched to 70 cm with 5x3 reports. Bob then worked Mark VK2AMS on 70 cm (5x5) and 2 m (5x1). Unfortunately, Bob was not operational on 23 cm.

AIS

With the imminent demise of the analogue TV transmission network, we will lose some important propagation beacons. As mentioned above, the Newcastle Channel 5A transmitter provides a good indication of conditions from VK to ZL. However, this will be shut down by the end of November.

A few years ago, the aircraft system ADS-B on 1090 MHz was looked at as a possible indicator of good tropo propagation. However, having run an ADS-B receiver here for several years, I have seen little extension of ADS-B coverage in different conditions. It's possible that for aircraft flying above the tropo layer, the signals passing through the inversion to ground may in fact be degraded by good tropo enhancement.

Another promising substitute is AIS (Automatic Identification System) used by ships to transmit information including their current location. AIS uses 162 MHz for signalling, so could be a good indicator for conditions on the 2 m band.

Bob ZL3TY recently started using AIS and reports:

Last week I installed a five element Yagi and AIS receiver on 162 MHz. AIS (Automatic Identification System) is an automatic tracking system used on ships. The Yagi is aimed west at the eastern side of VK while the receiver is connected via the Internet to MarineTraffic.com The receiver was supplied at no cost by the University of the Aegean in Greece who run the MarineTraffic project.

Initially I was receiving some Korean fishing boats working off the coast, out to about 100 km maximum, with one spot 300 km to the NW from a ship heading to Port Nelson. The ships logged are displayed on a world map on the MarineTraffic.com site. There are several receivers around the NZ coast, mostly logging ships near ports.

On Friday afternoon at 4.00 pm I noticed a spot from a ship in the Tasman from a VK2 near Sydney, then later at 4.50 pm there was one in mid-Tasman logged by my receiver. I checked Channel 5A and it was about S5, soon rising to S9.

Later in the evening at 8.00 pm I worked VK2ZT on 2 m, followed by VK2DVZ and VK2AMS, and shortly afterwards worked all three on 70 cm. The AIS reports kept coming all along the VK2 coast from Sydney northwards, the furthest north being a ship about 100 km east of Brisbane.

Most of the ships transmit 12 W, however there was one ship logged with a class B TX running 2 W, located near Newcastle.

By Saturday morning the VK AIS reports were gone, however there were reports from ships in the north Tasman, one being 400 km west of Northland. The last logged were two early on Sunday morning at 900 km in the north Tasman.

The AIS system will be a useful indicator of propagation in the Tasman for me; currently I use Ch5A at Newcastle but it will be gone soon. It will also be good for monitoring propagation north from here along the west coast to northern ZL. All international shipping is required to have an AIS beacon.

For more information on AIS look at Marinetraffic.com and Wikipedia has extensive coverage.

Use of AIS is obviously limited to the paths containing some over-water sections where shipping is active, such as VK-ZL and the Bight. However, in VK, these are the paths that provide the longest distance contacts. Also, the relatively low power of the ship transmitters would not provide quite the early warning from the 100 kW EIRP of Ch 5A Newcastle.

For the last year or so, Leigh VK2KRR has been experimenting

with AIS signals from his inland location near Wagga and has been reporting his findings on the Logger. His experience seems to show that even if the ships are at the end, or beyond the path of interest (for example, to Adelaide), the AIS still provides a very worthwhile indication.

For more information, see the VK Logger Forum: *http://www.vklogger.com/forum/viewtopic.php?f=47&t=10161*

VK3 Microwave Test Day

Planning for the VK3 Microwave Test Day has advanced. The date has been set to Sunday November 4th starting at 10 am. Yes, that's in the middle of the Melbourne Cup Day 'long weekend' but hopefully will be suitable for most.

The EMDRC have very kindly offered the use of their club rooms and grounds at 13a McCubbin St, Burwood (see *http://www.emdrc.com.au/club_rooms.html* for details). We'll be locating the test range across the park at the rear. There is a BBQ in the clubrooms that we will fire up for lunch.

VK4 Microwave Test Day Video

Following the recent VK4 Microwave Test Day, Adam VK4GHZ (aka Mr Logger) has produced an excellent video of the day covering, in simple terms, many of the techniques used to tune microwave equipment - highly recommended viewing for microwave 'newbies'. You'll find the video, in two parts, on the VK Logger forum at: *http://www.vklogger.com/forum/viewtopic.php?f=31&t=10884*

VHF/UHF Field Day Scoring

A proposal for a change to distance based scoring has been published by Andrew VK1DA and Colin VK5DK. It follows several years of discussion among some of the operators in the VHF/UHF Field Days, who have found that the scoring system used in these contests seems to have problems for operators in country areas. This proposal has been developed recently after several months of discussion via email.

The sponsors of the proposal believe that instead of calculating scores on the basis of the grid squares worked, a distance based score would make more sense for vhf-uhf contacts and could be consistently applied in all parts of the country.

What about rovers? Rovers are stations who try to operate from as many different grid squares as possible, to maximise their grid bonuses. As a distance formula would not work well with rovers, it has been suggested that the rover stations would continue to use grid squares for their scoring. They would continue to make contacts with all stations, whether they were rovers or not, the contacts qualifying both operators for the points applying to their operating category.

The other major change proposed is the introduction of a separate category for the 6 m, 2 m and 70 cm bands. This category caters directly for the large number of operators who have multiband radios such as the popular FT-857, FT-897, FT-817, IC-706, IC-7000 and TS-2000 and who do not have equipment for any higher bands. This proposal suggests creating a separate category for stations limited to the 6 m, 2 m and 70 cm bands. Colin and Andrew believe this will boost interest in these events.

The proposal is available on the net for all to read. The web address is *vk1da.net* where you'll find a link to the proposal. The net-based survey was planned to run for a month ending mid-October, with a summary of views to be made available as soon as possible afterwards. Depending on the outcome of the survey, the proposal was to be updated to take up suggestions made, and a submission sent to the WIA contest manager and the VHF contests manager.

VK3 144.150 Net

The VK3 144.150 MHz Net held each Wednesday at 2030 local time continues to attract a good turnout. Michael VK3KH in Mt Eliza and Rob VK3MQ on Mt Dandenong jointly run the Net, sharing the call-in duties according to their respective coverage areas.

A recent Net included 12 participants braving the cold conditions in their shacks. Stations included Colin VK5DK in Mt Gambier and Rob VK1KW in Canberra via a convenient Aircraft Enhancement opportunity.

Beacons

The VK Logger includes a database of VHF/UHF/Microwave Beacons, including their current status. Unfortunately, the information for many of the beacons is quite old making the data much less useful – it's frustrating looking for a beacon that you later find is off-air. So, in preparation for the summer, could people have a listen for their local beacons and update the beacon database accordingly.

Alan VK3XPD advises that he has repaired the VK3RLP 2.4 GHz beacon, which had been out of operation for several years. It is currently undergoing testing at his QTH and will be re-installed at its Frankston location shortly. The beacon is nominally on a frequency of 2403.542 MHz.

Colin VK5DK reports:

Thanks to David VK3HZ and Graham VK3XDK, I can advise that a 10 GHz beacon for VK5RSE Mt Gambier is taking shape.

This beacon transmitter will operate on a frequency of 10.368550 GHz, using a modified VK3XDK PLL unit and programmed by David VK3HZ. It will be GPS locked. David has programmed the PLL to have two outputs, one on 1656 MHz which is multiplied by six to 9936 MHz, the second frequency from the PLL is on 432.550 MHz which has the CW keying programmed into it. These signals are then combined in a VK3XDK 10

GHz transverter (transmit side only) to produce the beacon signal.

The Beacon is planned to run around two watts output into an omnidirectional slotted waveguide antenna with around 10 dB antenna gain.

At this stage the beacon driver stage running around 20 mW is under test at my QTH into a HP432A power meter. The PA stage has not yet been added owing to availability from the chip supplier at this time.

Barring other issues, we hope to have the beacon installed by the end of November. Future plans may be to GPS lock our 144.550, 432.550 and 1296.550 beacons.

Please send any Weak Signal reports to David VK3HZ at *vk3hz@wia.org.au*

Digital DX Modes

Rex Moncur VK7MO

FSK441 activity sessions

Welcome to Colin VK4MIL and George VK4AML who have both made contacts with Arie VK3AMZ. Also welcome to Wayne VK4NWH who is active and Norm VK3DUT has just got digital operational and reported copying Bob ZL3TY. Activity sessions are held each Saturday and Sunday morning from 0700 to 0800 local on 144.230.

FSK441 tropo-extension of meteor scatter

On 28 September Arie VK3AMZ and Bob ZL3TY commented on the VK Logger that there was the possibility of a tropo-extension as shown on the Hepburn chart at fig 1. The path is 2328 km and under normal conditions it is rare to get more than a ping in an hour. While most of the chart between Aire and Bob shows black for nil propagation, there is a good patch of yellow out for about a third of the way from Bob. A meteor scatter QSO was quickly completed with Bob reporting "Thanks Arie, got 7 pings from you - outstanding!!". While it has been some time since we have experienced tropo-extensions of meteor scatter, this multi-mode propagation is well worth exploring for long paths of over 2200 km when there is an indication of good tropo at one end of a meteor scatter path.

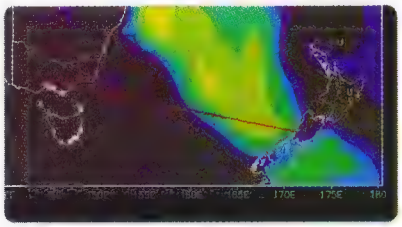


Figure 1: Tropo extension of the VM3AMZ to ZL3TY path.

WSJT version 9.3

The experimental modes ISCAT-A, JT65B2 and JT65C2 have now been released as standard modes and are available in WSJT 9.3 version r2585 at:

http://physics.princeton.edu/pulsar/K1JT/WSJT9_r2585.EXE

The former ISCAT mode now comes in two sub-modes - ISCAT-A designed for microwave aircraft scatter and ISCAT-B which is the mode previously just called ISCAT which was designed for six metres meteor scatter but should also work well on six metres for tropo-scatter, ion-scatter and F2. It should also have potential for MS extensions of F2. ISCAT-B is thus a good general purpose digital mode for six metres as it can work with most types of propagation other than auroral. ISCAT-B works to about -18 dB on the WSJT scale for a continuous steady signal but will also decode short bursts of a second or so of stronger signal. It is possible to set ISCAT-B to run in 15 or 30 second periods.

Ross VK2DVZ and Rex VK7MO have been testing ISCAT-B on two metres meteor scatter and while it does work, it is not nearly as useful as FSK441 on two metres, which can respond to pings of just a fraction of a second, which are typical on two metres. Tests with ISCAT-A showed it also worked but required burns of at least several seconds. While FSK441 should continue to be used on 2 metres, 6 metre operators are encouraged to try ISCAT-B.

ISCAT-A was designed specifically for microwave aircraft scatter such as at 10 GHz where it can cope with the very large changes in Doppler that occur when an aircraft crosses the path at right angles. ISCAT-A is about one dB more sensitive than ISCAT-B but takes twice as long at ISCAT-B, about six seconds, to send two callsigns and a report – this is generally sufficient for the short bursts of signal that result from microwave aircraft scatter where the aircraft crosses the path at near right angles.

Joe Taylor K1JT, advises that the primary purpose of the JT65B2 and JT65C2 modes is to speed up exchanges for EME contests in situations where both stations have good signals. The JT65B2 and JT65C2 modes are not compatible with the standard versions of JT65. Joe has suggested that the JT65B2 mode be used in the frequency range 144.100 to 144.115 MHz, to differentiate it from the JT65B mode which is used from 144.100 to 144.160. These new modes work in 30 second periods compared to 60 second periods for the standard JT65 modes. The cost is that performance is reduced by three dB. Signal generator tests show that for about 50% correct decodes in Deep Search, JT65C2 works to -24.7 dB compared to JT65C which works to -27.7 dB. For most VK operators the three dB performance reduction is likely to outweigh the advantage of making a few QSOs with large stations more quickly.

The spread of tones is identical between JT65C and JT65C2 but the rate at which tones are sent is twice as fast and thus the binwidth required for individual tones is twice

as wide. Doubling the binwidth, and thus the noise per bin, results in the three dB reduction in performance.

My small station on 23cm EME – by VK2DVZ

A few years ago, one of the newer local amateurs, namely Mark VK2AMS was showing signs of an interest in the 23 cm band, so I encouraged and assisted him in various ways as able. His interest mushroomed and soon he was planning to try 23 cm EME. The rest is history, as Mark runs a successful 23 cm EME station.

After seeing and hearing about his ever-increasing successes, it was time to 'have a go' and join in on the fun or be left behind. Yes, I had heard a few signals previously off the moon, mainly CW but did not think my station was 'up to speed' performance wise, even though I had participated in several 23 cm SSB and digital successes, some of which still stand today. My existing elevation system was not stable enough in breezy conditions. It was time to get busy.

Busy meant removing the dish off the 6.25 m tower, rebuild portion of the support structure that attached to the 2.4 m solid Andrew dish (see Photo 1) as corrosion had taken its toll, remove the KR-500 elevation rotor that had served me well for many years and replace it with a HD linear actuator, build an OK1DFC septum feed and organise a different isolation relay, new preamp and rework the existing cabling. (I have always run separate TX and RX cabling, so most of it has been reused). Then it was time to put it all together in a workable and reliable state, so everything had to be spot-on first time!

A partial upgrade of some in-shack equipment and the re-use of my 25 year old SSB Electronics 23 cm-2 m and 2 m-28 MHz receive down converters and existing sequencing controller ensure the station performance is satisfactory for my small station, as determined by measured sun noise and confirmed by EME signals.

Initial EME contacts, using JT65C mode of the WSJT suite, have proved successful. My first 30 contacts off the moon were made using my single 2C39 water cooled PA that had literally gone off-the-boil as it must have a dying tube and was only producing 40-45 watts in the shack, about 30-35 watts maximum at the feed!

With that low power I was thrilled to work OK1DFC on JT65C and to be asked to try CW off the moon. 'No' said I, as I had not yet figured out how to operate my station on CW mode following the station up-grade. I was then asked to try SSB, to which I agreed.

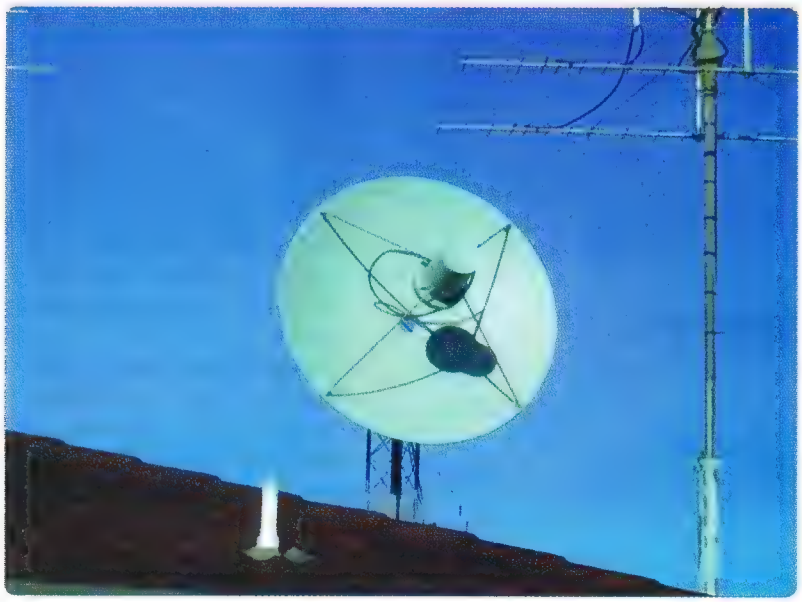
An SSB contact did result, taking me many minutes to complete the two way contact – it's times like that that a larger dish and more power would be extremely useful. I now have higher power capability, but will still continue to use the 2.4 m dish because it is elevated at about 6.5 m above the ground, lets me work the moon at moon-set down about seven degrees due to obstructions and to one degree elevation without obstructions. Moon rise is generally good and without obstruction. A larger ground mounted dish would experience far too much blocking by obstructions at my place and on neighbouring properties. A larger dish on the tower may not stand up to the wind forces.

Running 120 watts at the feed has made a lot of difference to the ability of other stations to copy my signals off the moon, but having a smaller dish than many other operators around the world means I have to try harder to work smaller stations – so that is my on-going challenge.

23 cm EME is totally different to 2 m EME as circular polarisation of the septum feed horn does not experience the severe QSB as on my 2 m linear polarised array, due to Faraday rotation. Do I have any complaints about 23 cm EME? Yes - it is not as 'busy' as on 2 m EME, so give it a try and come and join in on the fun. EME is a challenging facet of our amateur radio hobby, but very rewarding.

Please send any Digital DX Modes reports to Rex VK7MO at *rmoncur@bigpond.net.au*

Photo 1: The VK2DVZ 23 cm EME Dish.



The Magic Band – 6 m DX

Brian Cleland VK5BC

September began with good openings from VK4 to Hawaii and as the month progressed openings from northern areas of VK to Japan, China and Korea becoming more regular and the month ended with openings extending down to the Perth area. Contacts from the Darwin area were also made into the Middle East.

The month began on the evening of the 1st with Gary VK8AW hearing the A92 beacon and working Dave A92IO in Bahrain. Gary also heard the beacon again on the 2nd and worked DU7/PA0HIP.

On 4th September the southern areas of VK4, Hervey Bay to Brisbane started to hear Hawaiian beacons and several VK4 including Wade VK4WM, Scott VK4CZ, Brian VK4EK (Sapphire) and Wayne VK4WTN worked several KHs including KH6SIX, KH7Y and KH6HI.

The 6th September day started with Victor E51USA South Cook Islands working into Central America, Mexico and Southern USA areas and then around 0300 UTC another opening from Hawaii to VK4. The opening extended from Scott VK4CZ in Brisbane to Ray VK4BLK in Yeppoon and west to Brian VK4EK in Sapphire with Wayne VK4WTN, Wade VK4WM from the Hervey Bay area also in the action. Several KHs were worked including Fred KH7Y, Ned KH7JJ, Albert KH6HI and Tets AH7C. Later around 0630 UTC Mark VK8MS in Darwin also worked KH7Y. Then in the evening Gary VK8AW in Darwin reported hearing the Oman A47RB beacon at 539 and working BA8ASG. Michael VK6BHY in Karratha also worked BA8ASG whilst Mark VK8MS worked BA8AT.

Following the above, on most days contacts were reported from VK4, northern VK6 and VK8 (Darwin area) to the northern countries including Japan, Korea, China and Philippines. Contacts of note were made by Gary VK8AW and Mark VK8MS to VK9CS in the Cocos Keeling Islands, on the 23rd September and Mark also working A92IO.

Late evening 18th September at 1311 UTC Brian VK5BC worked Roger 9W6RT in East Malaysia.

On the afternoon of the 28th September the band opened from VK4 but then switched to southern VK6. Andy VK6OX reports the following:-

At around 0430Z, with the rig monitoring R1/C1 TV, the signals suddenly increased. I gave a couple of CW CQ calls on 110 and quickly worked JR2HCB 559. A few minutes later, worked him on SSB, also S5.

Over the next few hours, the band opened to JA1, 2, 3, 6, 7 and 8 (from this QTH) along with various HL and DS (South Korea) stations joining in. Signal strengths were variable with peaks to S9+ at times over the period. Stations in the Perth metro and adjacent regional areas that joined in the fun included VK6s Glen IQ, Ken AKT, Graham RO, Peter KXW, John JJ, Barry ZSB, Jack KDX and yours truly. The opening faded out around 0830Z.

This was the first southern TEP opening of note this spring season and hopefully conditions will extend to the south more regularly during October/November.

Please send any six metre information to Brian VK5BC at *briancleland@bigpond.com*

CCARC

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24th February 2013

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Contests

Phil Smeaton VK4BAA
e *vk4baa@wia.org.au*

Welcome to this month's Contest column.

Why are you reading this column?

At the time of going to print, it's the lull before the contesting storm. Should you not be outside, putting up that 4-over-4 quad stack on 160 metres, instead of sitting on the sofa reading this magazine?

Lots of preparation to do before the CQWW contests get underway, but at the time of writing in mid-September, the Oceania contests are just around the corner and CQWW SSB is only a few weeks away. By the time this magazine gets delivered, both Oceania contests will be history and CQWW SSB should have only just taken place.

For us in VK, the contest season hasn't really kicked-off as yet, with generally only a few northern hemisphere contests available to whet the appetite. Of course, there are domestic contests to participate in and the JIDX is closer to home – just let your QSL manager know in advance!

Yet more goings on at CQWW

Amidst all manner of revamps and alterations in the past couple of months, Bob Cox K3EST has retired as Director of the CQ World Wide DX Contest and as CQ's Director of Contesting, it was recently announced. Bob has been at the helm of the CQWW for 35 years, guiding the contest through massive changes in technology - both on and off the air - and CQWW's growth to become the world's most popular amateur radio contest. Cox's retirement is effective immediately. A successor has not yet been named. I suppose time will tell if he was pushed or if he jumped, as the rumour mill continues to peddle comments on the amount of change and the method of implementation…

Contest Calendar for November 2012 – January 2013

November	10/11	Japan International DX Contest	SSB
	10/11	Worked All Europe DX Contest	RTTY
	3/4	ARRL International EME Contest	All
	24/25	**Spring VHF/UHF Field Day**	**CW / SSB / FM**
	24/25	**CQWW DX Contest**	**CW**
	30	ARRL 160 metre Contest	CW
December	1	RTTY Melee	RTTY
	8/9	ARRL 10 metre Contest	CW/SSB
	21/22	OK DX RTTY Contest	RTTY
January	**2013**	**Ross Hull Memorial VHF Contest (VHF/UHF)**	**CW / SSB / FM**

CQWPX log checking

Log Check Reports for all entrants to the 2012 WPX SSB Contest have been available for participants for some time now. An email with a link to the Log Check Report has been sent to everyone who submitted a log. The emails include a private link to the report file. If you submitted a log and did not receive an email, you might want to check your junk mail folder. You may also request your report from *director@cqwpx.com*

The organisers did a deeper level of log checking this year than ever before. There were 34,837 unique callsigns among the 2,866,408 QSOs. 74.4% of those unique QSOs were determined to be incorrect. The median score reduction was 8.5%, which hits the bottom line hard. WPX is usually a little higher than other contests since many busted calls create prefix multipliers that the logging software attributes points for. Log checking is getting much more organised in recent years, with technology allowing more in-depth and widespread checking to take place. Thankfully, gone are the days where a number of contest organisers would simply publish claimed scores in the final results and not perform any checking at all. No checking of logged data makes a mockery of the contest that they purport to be an ambassador for and diminishes the validity of taking part in the contest exchange as regards accuracy.

Oceania certificates

For quite a number of years now, NZART and the WIA have been sponsoring the cost of printing and posting the OCDX certificates. However, as expected, with the introduction of the on-line certificates the size of this task and associated costs is rapidly reducing – thankfully!

Recent requests for award sponsors produced an overwhelming response for a new sponsor for the plaque awarded to the top entrant from Asia in the Single Operator All Band Phone category. There were a number of offers but Lee VK3GK was the first one to put his hand up, so he is the new sponsor of this plaque.

Additionally, the Central Coast Amateur Radio Club Inc has kindly offered to sponsor a new plaque for the top entrant from Australia in

the Single Operator Low Power All Band Phone category and at the same time Tony VK3VTH has agreed to modify the scope of the plaque that he sponsors so that it now covers the top entrant from Australia in the Single Operator High Power All Band Phone category. There are also a few other plaque sponsorship proposals in the pipeline which the OCDX Contest committee are working through and hope to be able to announce shortly.

In summary, the OCDX contest committee is pleased to announce that new plaques will be available for winners of the following categories in the 2012 contest:

- Top entrant from Oceania in the Phone M2 category (sponsored by the South Pacific Contest Club).
- Top entrant from Oceania in the CW M2 category (sponsored by the South Pacific Contest Club).
- Top entrant from Asia in the Phone M2 category (sponsored by QRO Communications and OM Power).
- Top entrant from Asia in the CW M2 category (sponsored by QRO Communications and OM Power).
- Top entrant from VK in the Phone Single Operator All Band Low Power category (sponsored by the Central Coast Amateur Radio Club).
- Top entrant from VK in Phone Single Operator All Band High Power category (sponsored by Tony Hambling VK3VTH).

Additionally, Lee Moyle VK3GK is the new sponsor of the plaque awarded to the top entrant from Asia in the Phone Single Operator All Band category, and the rules for the Australia Club plaque have been updated so that a club now only requires three participant stations in order to compete for this award.

CQWW RTTY 2012 results

The following VK stations participated in the CQWW RTTY contest this year and produced the following results:
VK2CA (All Band) 130,152; **VK2GR** (All Band) 13,908; **VK2KDP** (All Band) 2,028; **VK3TDX** (All Band) 1,490,832; **VK3FM** (All Band) 167,717; **VK4IU** (All Band) 867,200; **VK4UC** (All Band) 697,175; **VK4CC** (All Band) 1,610; **VK4FNQ** (28) 1,026; **VK4BL** (All Band) 20,898; **VK4FJ** (21) 242,046; **VK4IMX** (14) 3,360; **VK6XX** (28) 96,822.

Well done all!

CQWW CW 2011 results

The following VK stations participated in the CQWW CW contest last year and produced the following results:
VK6AA 7,024,050 (OP:**VK2IA**); **VK2IM** 4,992,237; **VK4UC** 3,961,848 (OP:**N6AA**); **VK8GM** 2,755,360 (OP:**OZ1AA**); **VK3TDX** 1,183,028; **VK3IO** 351,747; **VK7ZE** 315,861; **VK4IU** 116,590; **VK2PN** 16,380; **VK2AYD** 245,127; **VK4BUI** 211,792; **VK6XX** 114,608 (OP:**VK6HZ**); **VK6LW** 1,349,341; **VK2GR** 111,690; **VK4TT** 52,038; **VK2BNG** 8,883; **VK3GDM** 6,413; **VK6HG** 112,302; **VK3FM** 64,930; **VK8AV** 41,400; **VK4IMX** 92,625; **VK2NU** 284,328; VK6DU 132,343; VK5DC 4,158; **VK4KW** 8,685,372.

VK stations really hit the limelight in this 2011 contest. Kevin VK6LW achieved world first on 14 MHz; the VKCC teams came world 5th and world 16th and VK2NU broke the Oceania 14 MHz Low Power record. Well done VK!

This will be my penultimate offering to *AR*, so if you have a passion for contesting I'm sure that the Editor would be happy to hear from you as regards potentially taking over the reins of this column. In the meantime, as always, if you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via *vk4baa@wia.org.au* See you on the bands.

73 de Phil Smeaton VK4BAA.

Admission just $5
Book a table for $10

BBQ Breakfast and lunch 0800 to 1400 hrs.

Cold drinks tea & coffee all day.

Don't forget the big Auction around 11.30 hrs.

Multi draw Raffle.
Lucky door prize.

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Ham & Wine Fest 2013

Saturday 2nd February 2013

At the Maclagan Hall Margaret St Maclagan
About 45 minutes drive from Toowoomba.

Doors open at 0900 hrs Stand holders 0700 hrs

All the usual goodies on sale, new and used gear.
Wine tasting and sales. LED lighting.
Scrapbooking and crafts.

For more information and updates on this event please contact
Ricky VK4NRL *nicketanric@bigpond.com* Phone 07 4662 6651 or 0429 726 833
Neil VK4NF *holmzie@bigpond.com* Phone 07 4662 4950 or 0488 687 643

Spring VHF-UHF Field Day 2012

Contest manager: John Martin VK3KM

F Call Challenge

As in the Winter Field Day, there will again be an "F Call Challenge", with special certificates for Foundation licensees who participate in any of the single operator sections of the Field Day.

Operating periods

Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

Entering more than one section

If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

Two operators

If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

Multi-operator stations

Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

Rover stations

The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

Dates: Saturday and Sunday 24 and 25 November 2012

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.
Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.
B: Portable station, single operator, 8 hours.
C: Portable station, multiple operator, 24 hours.
D: Portable station, multiple operator, 8 hours.
E: Home station, 24 hours.
F: Rover station, 24 hours.

General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite and cross band contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table (shown on right side column).

In this example the operator has operated from one locator and worked four locators on each band.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

Band	Locators Activated (10 points each)	+	Locators Worked (10 points each)	+	QSOs (1 point each)	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
etc.									
Overall Total								=	680

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153. Please email electronic logs to *vhfuhf@wia.org.au* Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by Monday, 10 December 2012. Early logs would be appreciated.

Field Day Web Site: *http://www.wia.org.au/members/contests/vhfuhf/*

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.

VK2news

Tim Mills VK2ZTM
e *vk2ztm@wia.org.au*

ARNSW in recent weeks has been providing a name badge to all current financial members. If by the end of November any member has yet to receive theirs please let the office know at *office@arnsw.org.au* The VK2RWI six metre repeater on 53.850 MHz has settled in well with a stronger voice and better ears. Similar improvements have been made to 7000 and 8525 in recent times.

ARNSW final activities for the year will be a Foundation Course, most likely Sunday, 18th November and all grades of assessments on Sunday the 25th. Also on this day will be the final Trash and Treasure for the year.

At month's end ARNSW Life Member Bill Hall VK2XT celebrates his 100th birthday. Bill was licenced in 1930 under the call VK2BH but the then soon to be established commercial AM station for Broken wanted 2BH and as was the practice in those days call letters used by a broadcast station could not also be used by an amateur. The PMG gave Bill several choices of alternate call and he chose his present VK2XT. Bill has had a very active life in amateur radio, including several years providing the QSL Bureau operations to the NSW Division.

WICEN NSW held their AGM last September with Crompton Allen VK2HRX in as President, and Steven Heimann VK2BOS Vice President. Steve Diekman VK2FSDO continues on as Secretary but no one volunteered for Treasurer. The committee comprises Mal Alexandra VK2YVA, John Harper VK2FCOM, Andrew Vaughan VK2XPT and Al Hirschel VK2VEC. 16 operators took part in the recent Trek for Timor. Next year in September it will be held in Kangaroo Valley.

Waverley ARS has repaired the club room roof top antenna system damaged by winds a couple of months ago. New masting has even gained a bit of height for them. The Central Coast ARC has embarked on a kit building series of projects. These include 40 metre and 20 metre SSB QRP transceivers and an antenna analyser. They are looking for suggestions for other projects; check out *www.ccarc.org.au* They announced the 2013 Field Day last month in AR. The famous Wyong Field Day will be on Sunday, 24th February, 2013. Check out *www.fieldday.org.au*

Westlakes ARC, which provides the Outwards QSL Bureau for the WIA, is an active club who meet on Saturday from 12 noon. Contact them by phone on 02 4958 1588.

The Hunter Radio Group meets monthly on the second Friday at the NBN Studios, Mosbri Crescent, Newcastle, except for January, July and December. They provide a news bulletin Monday evenings from early February to early December on 3593 kHz, and operate repeaters on 146.900, 438.025 and 146.725 MHz.

VK7news

Justin Giles-Clark VK7TW
e vk7tw@wia.org.au
w groups.yahoo.com/group/vk7regionalnews/

Michael Owen VK3KI SK

It was with great sadness and shock that we learnt of the sudden death of our President Michael Owen VK3KI. A great man and the driving force of modern amateur radio in Australia and internationally. On behalf of all interested in amateur radio in Tasmania, the VK7 Advisory Committee extends sincere condolences to Michael's family and friends at this difficult time. Michael will be greatly missed. Vale Michael Owen VK3KI SK.

Miena Hamfest

Saturday 1st December 2012 is the biennial VK7 Hamfest and it happens at the Miena Community Hall in the Central Highlands of Tasmania, thanks to the Central Highlands Amateur Radio Club of Tasmania. Many traders are making the journey across Bass Strait and there may even be a Kenwood TS-990 on display. There will be lucky door prizes and excellent BBQ food available. Entry fee is $5.00 per family or person and this enters you in the raffle. If any club or individual would like a display table could they please contact Dave VK7OB on 0429 123 080.

Repeater News

The Don Heads VK7RAE 2 metre (144.474 MHz), 6 metre (50.057 MHz) and 10 metre (28.267 MHz) beacons are back on air thanks to Peter VK7PD, Dave VK7DD, Scott VK7NWT, Tim VK7TIM, Bob VK7BOB, Mark VK7KMA and Joe VK7JG. Many reception reports have already been received. The VK7RIN repeater levels have been adjusted to improve the weekly broadcast levels along with the installation of a higher powered UHF transmitter section providing future ability to cross band using this repeater; thanks to Joe VK7JG for all this work.

Cradle Coast Amateur Radio Club

Congratulations to Eric who has upgraded to VK7EK, Steve who has upgraded to VK7BI and new Foundation Licence holder Kevin VK7FKEV who were all successful at recent assessments. During September CCARC helped out with an 80 km equestrian endurance ride near Wynyard by providing safety, checkpoints and base communications. About 40 riders participated and good use was made of the UHF repeater VK7RAC on Table Cape and the communications trailer kindly donated by Rick VK7FRIK.

Northern Tasmania Amateur Radio Club

NTARC's September meeting saw guest speaker David Long from the ACMA give a presentation on the role of the regulator of our radio spectrum and provide some interesting stories of a day in the life of a technical ACMA field representative. A big thank you to David for his time and presentation.

North West Tasmanian Amateur TV Group (NWT-ATVG)

The NWT-ATVG has been experimenting with Digital ATV transmissions from Ulverstone using a TECATEL unit. The group is currently organising a linear power amplifier to increase coverage around the Ulverstone area. If you watch the NWT-ATVG broadcasts on analogue ATV in the Ulverstone area why not try tuning your set-top box or TV to 446.5 MHz with a 7 MHz bandwidth and see if you can receive the digital ATV signal. All signals reports to Tony VK7AX.

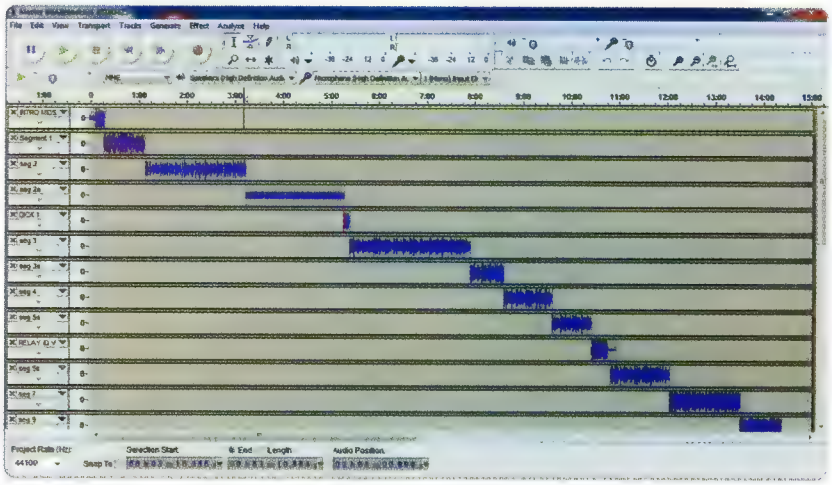


Photo 1: The Audacity audio manipulation application. Photo courtesy of VK7TW.

Radio and Electronics Association of Southern Tasmania

Due to popular demand, REAST's September presentation saw the author and Brian VK7TX give a demonstration of digital audio and video manipulation. The author used the freeware multi-platform application, Audacity, for recording, processing, editing and manipulating audio files and used a multitrack WIA National broadcast as a demonstration file. Brian used the Avid - Pinnacle Video editing application and used a recently produced Scout Regatta promotional video to demonstrate the editing, adding effects, titling and music to the video clips to create a very professional end result. Thanks to Brian for sharing his video editing skill and knowledge.

REAST's DATV Experimenters' nights have seen an ex-TV linear PA, QSL card from Raleigh Stout AC5JW who was a participant on the world-wide ATV QSO Party, building a high power switch mode 13.8 VDC 75 amp power supply, dangerous fuse holders, x/y/z movement motors, RaspberryPi implementation of XBMC and our new QSL cards. Video presentations have included ships – AIS, planes – ADS-B and autos – APRS presentations and talks from the WIA Centenary weekend. We stream our content on batc.tv – members stream VK7OTC – see you there!

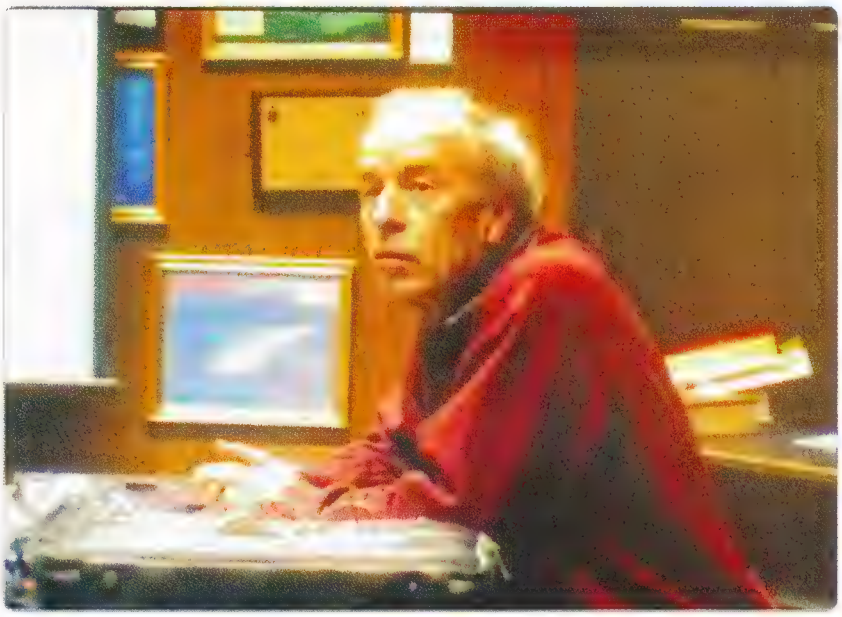


Photo 2: Brian Muir VK7TX taking the audience through a video editing sequence. Photo courtesy of VK7TW.

Silent Key

Dick Heighway VK3ABK

It is with regret that we advise the passing of Dick Heighway VK3ABK on 3rd August, 2012. Dick was one of the founding members of the Geelong Amateur Radio Club.

Dick was undoubtedly a pioneer in the amateur radio field. His interest in radio was first apparent during WW2 when his father caught him monitoring Japanese broadcasts on a home brew radio. He then went on to demonstrate 405 line TV to the public for a Melbourne company, before 625 lines arrived. After this he worked for CSIRO in Geelong, in the electronics laboratory of the textile division, where RF played an important role.

In the late 1940s he was issued the call sign of VK3ABK and so started his love and involvement with amateur radio. Although he built and operated equipment on the HF bands his primary interest was VHF. In 1956 he applied for and was granted a licence to transmit television. Dick then built a home brew 70 cm amateur TV station.

When in the 1960s commercial car phones were being modified for two metres Dick had one installed in his car. He was also heavily involved in the joint GARC/GRES project to build one of the first repeater stations in Victoria. He was also involved in the 'packet revolution' using the Dove satellite and took great pleasure in setting up long digipeating terrestrial paths, and this he used till the last BBS available to him was shut down. About this time his hearing deteriorated and he dealt with this typically, by making his own hearing aid, but even with a commercial one the problem persisted. Undeterred Dick then set about, with Barry VK3SY, writing the first 50 years of the Geelong Amateur Radio Club, to which he was now a life member.

In later years he became interested in global warming and was of the opinion that it was an insult to mankind to hold them responsible, and so started to look at natural occurring events such as meteors and lightning strikes, building his own equipment to monitor these occurrences. This equipment included a Geiger counter, from his CSIRO days, to monitor background radiation. Dick was a classic old style amateur, believing that all equipment should be home made, as a consequence of which there was little commercial gear in his shack.

During the last months of his life he was confined to bed and was compelled to use oxygen 24 hours a day. All in all he was a remarkable person and the above does not do justice to his significant contribution to the furtherance of the world of amateur radio.

This obituary on the life of Dick Heighway VK3ABK was sourced from information kindly supplied to the GARC by Rod Green VK3AYQ.

Contributed by Tony Collis VK3JGC on behalf of the Geelong Amateur Radio Club.

Spotlight on **SWLing**

Robin L Harwood VK7RH
e *vk7rh@wia.org.au*

I was shocked and very saddened to hear of the sudden death of Michael Owen VK3KI, the WIA President, on 22nd of September. I had only briefly met him on one occasion at a divisional hamfest here in VK7, but the date eludes me, probably in the mid 80s. I think he was an IARU representative at the time. My condolences go to his family and to the wider WIA family, as they mourn an inspirational leader who led the WIA into becoming a truly national organisation.

Bonaire has finally gone silent after nearly three decades of broadcasting on HF. This indeed is sad as signals came in here consistently with excellent relays of Radio Nederlands and, later, relaying of other broadcasters. As you are aware, the Dutch Government dramatically slashed RNW's budget so that it became no longer viable to continue broadcasting. A new free press format was to replace it but not affiliated to the Dutch government, although minimal funding was allocated. I am aware that there has been an irregular Spanish broadcast from Bonaire, ostensibly for Cuba. Support was also available for programming for greater Sudan and Zimbabwe, utilising the Talata relay in Madagascar, although RNW no longer owns the relay station as it was purchased by local management, and manning the senders. I believe that programming to Sudan and Zimbabwe continues from Talata.

The Montsinery site in French Guiana is now one of the few remaining high-powered transmitting senders on continental South America. Clients, who were formerly using Bonaire, will probably sign up to utilise it.

Radio Liberty (R. Svboda) has been broadcasting to Russia for 60 years and for the past 20 years or so was able to broadcast via medium wave and FM with Russia and some CIS nations. This dramatically changed on the 1st of October as the Russian Government refused to allow RL to hire transmission time or broadcast locally. They cited the reason as being interference in the internal affairs of the Russian Federation. I believe that the American broadcaster employed local staff to produce programming and to assist with administrative duties. I believe that the Americans sacked the staff and closed their offices. It is not known what alternative arrangements have been made to overcome the Russian decision, which is a throwback to the Cold War, which ended just over 20 years ago. Will this see the reactivation of increased shortwave output? I cannot say as the IBB, which is the parent organisation, appears fixated on streaming output on the Internet.

There are also indications that the Spanish Foreign Radio (REE) in Madrid may also be quitting shortwave by the end of 2012. Spain has been severely hit by recession and a very unpopular austerity plan has been implemented to curb spending. REE operates from Nobejlas and also has a relay base in Costa Rica. Greece has also been battling a severe austerity regime that is highly unpopular but the Greeks shortwave service continues, with reduced output.

Russia decided to revert to standard time on the 28th of October after the decision to permanently advance clocks by one hour proved highly unpopular. It also decided to revert to 11 time zones instead of nine. Russia will reintroduce DST in March along with the rest of the northern hemisphere.

Over to you

Help needed

I have two issues with which readers and WIA members may be able to help:

1. Has anyone fitted electric winches that can be remotely controlled to a Nally tower to raise and lower it and to telescope the inner section up and down. I would be grateful for any advice on this issue.
2. Can anyone tell me where one can get printed circuit boards for ETI projects?

73, Scotty VK2KE
vk2ke@wia.org.au

VK6news

Keith Bainbridge VK6RK
e vk6rk@wia.org.au

I'm sad to start off this month's VK6news with the news that WIA President Michael Owen VK3KI passed away suddenly at home. I had just sat down to start producing this month's column when that news came in by email.

I'd like to offer all VK6 amateurs condolences to Michael's family and friends; we have lost a tireless worker for amateur radio in this country.

I worked with Michael on several projects over the years, and you could always count on his commitment to the amateur radio cause. Vale Michael VK3KI.

Photo 1: The VK6BBS refurbishment under progress.

Peel Amateur Radio Group (PARG) news, contributed by Paul VK6LL, Secretary PARG.

PARG members recently assisted with emergency communications for the local (Mandurah) State Emergency Services unit. Over a two day period the WA coastline was hit by extensive storm damage, and the Mandurah SES received over 400 requests for assistance. Radio amateurs provided much needed relief to the hard working SES operators. Assisting in times of emergency was a rewarding and exciting experience for the amateurs involved.

The PARG is currently preparing for the running of another hectic JOTA/JOTI station on behalf of the Peel Scouting District, on Saturday 20th October. For 2012 Scouts Australia has asked PARG to run the station from a new venue, that being the 1st Rockingham Scout Hall. Portable field testing is starting in late September to ensure reliable communications on HF, VHF, IRLP and EchoLink.

JOTA is probably the biggest annual event for PARG, and this year two portable station test days will be needed to prove in the communications at the new station QTH. JOTA provides an ideal opportunity for the group to fire up all of its radio gear, including the custom built 12 metre mast on the group's Mobile Communications Unit (trailer). VK6ARG will be working overtime down in Rockingham right through from midday to midnight on October 20th.

Thanks for the update Paul and best of luck with JOTA.

Now it's the Hills Amateur Radio Group's (HARG) turn.

The new committee for HARG is: President: Martin Stretton VK6ZMS, Vice President: Rob Nottage VK6UFO, Secretary: John Trimmer VK6JAT, Treasurer: Cliff Bastin

VK6LZ, Publicity Manager: Bill Rose VK6WJ, Technical Officer: Heath Walder VK6TWO.

Recently, the club purchased a very nice, second hand 100 MHz oscilloscope to add to its increasing range of test gear, some of which is available for members to borrow. Richard VK6BMW gave us a driving lesson on the new CRO and explained the basic functions including how to safely display and analyse the output waveform of a transceiver using dummy loads, modified T pieces and sniffer coils. We now also have an Ameritron linear amplifier and this was demonstrated to members at recent meetings.

At our General Meeting on Saturday 25th August Lee VK6TY and Jon VK6MAD entertained a large group of members with a demonstration of their recently built magnetic loop antennas. As a result, quite a few club members have now built their own loops and there has been much discussion about suitable tuning capacitors.

At our General Meeting on 27th September Rob VK6UFO gave members and visitors a talk on the APRS system in general and also the HARG APRS unit set up in the club shack.

At our Social meeting on Saturday 10th November Ray VK6ZRW will take us on a tour of the Channel 2 television transmitting site at Bickley. That will be our last technical session for the year.

The club recently obtained a large number of second hand radio components from the estate of silent key Cliff VK6NK and these will be available for sale at every club meeting from now on.

Don't forget that we now have a midday sausage sizzle before every meeting and meetings then start at 2.00 pm. Social meetings are on the second Saturday of the month and General Meetings on the last Saturday. For more information go to *www.harg.org.au* 73 until next time from Bill VK6WJ.

Thanks to Bill for the update.

Glen *VK6IQ* and Eddie *VK6YA* have been busy!!

Here is their update. On Thursday 20th September Glen VK6IQ and Eddie VK6YA installed the VK6BBS packet system at Wireless Hill.

The delay in re-installing the packet system at Wireless Hill was due to all the work that the Melville City council had been doing there to celebrate the upcoming centenary of Wireless Hill.

There are new paths, barbecues, shelters and the whole ring road has been repaved, the Wireless Hill Museum has been cleared out ready for new displays and the radio shack has had new carpet installed. (I believe there will be more on this centenary celebration elsewhere in *AR*, VK6RK.)

This delay in reinstalling the VK6BBS packet systems meant that it did have an extended testing period at the home of Eddie VK6YA, with fine tuning the configuration of the BBS software. The original installation of VK6BBS had been removed by Glen in June as the computer had failed and on investigation it was found that both the hard disk and motherboard had died. This required a new computer be sourced, Linux installed, and the software configured to work with the available hardware.

After discovering that the TNC2 clone was faulty, Edie was supplied with a second KPC9612, and an edit to the main script written by him saw the BBS forward port function as intended.

VK6BBS runs on an Intel P4 computer, with a 40 GB hard disk, 1 GB memory and two serial ports. The radios on 144.725 MHz and 147.575 MHz are ruggedised FM828s and the radio used on the 9600 port of 441.050 MHz is a Tekk KS-900.

The TNCs used for all ports are the Kantronics KPC9612 dual port TNCs. The KPC9612 TNCs have one serial port and two connectors to connect to radios; one radio can run at 1200 the other at 9600. The TNC is set into kiss mode, the AX25 software on the BBS creates two virtual serial ports and then the BBS software sees two separate TNCs, and uses them appropriately.

The antenna used for all RF ports on the BBS is a refurbished dual-band, and the radios use a set of cavity filters to isolate the two 2 metre ports and a duplexer to combine the 2 metre and 70 cm ports.

So those of you who have missed your fix of packet radio now have a working BBS system back again thanks to the efforts of Eddie and Glen.

On the subject of Wireless Hill, a few words from the *VHF Group.*

The WA VHF Group is preparing for the Wireless Hill Centenary and will be on air as VI6VIP from 29 September to 13 October inclusive. If the information I submitted last month is in the October edition of *AR* then readers will know that it is on. Unfortunately we cannot produce photos or news until it happens, so that will be for the December *AR*.

We mourn the loss of Michael Owen VK3KI, who was a great ambassador for the WIA and offer our sincere condolences to his family and all who called him friend.

We have our AGM in October and the new leadership will be working on taking up the offer of making this our permanent 'home' and securing this by MOU. 73, Bob VK6KW.

Finally, news from the *Northern Corridor Radio Group (NCRG).*

Sunday September 23rd saw the AGM take place at NPSARC. It was well attended and a healthy discussion took place with the results being small changes to the Committee.

President is Keith VK6RK, Vice President is Stu VK6LSB, Secretary is Wayne VK6EH and Treasurer is Anthony VK6AL.

Our outgoing President Ian VK6TWJ was warmly thanked for providing a calming influence after the hectic 12 month period preceding the last AGM.

Photo 2: The very impressive NCRG antenna farm – but still a 'work in progress'.

The club is now a more relaxed place to be and all projects are running smoothly with far more group participation than in the past. Other positions will be filled as soon as the correct people can have their arms twisted.

Arthur VK6CY is making great progress on the 80 metre four square antenna and it should be ready for some of the upcoming contest activities.

On the subject of contests, the NCRG is now the proud holder of the callsign VK6NE, the late Neil Penfold's call. As Neil was a founder and champion of the OCDX Contest, we thought it appropriate to use his call once a year in the SSB section of the OCDX Contest, on October 6th this year. So by the time this is published it will have had a good thrashing and hopefully achieved some good scores.

There has also been much progress on the re-installation of the late Don Graham's VK6HK excellent tower. A correction to a previous update on this tower is needed; the tower was designed and built by Bob VK6KRC and the late Harry Pride, not Don himself, though Don was indeed responsible for the impressive array of antennas that were on the top! The tower is almost up and the VHF/ UHF antennas will soon be back on air.

The NCRG is hosting a Car Boot Sale at the club premises in Whiteman Park on Saturday 17th November at 9 am. All are welcome and parking bays are available at $5 each. Please note this is an outside event so bring suitable protection against sun or rain! Please contact Keith VK6RK to book a spot. There will be a sausage sizzle and cold drinks available on the day. We look forward to seeing you there.

That's it for the VK6news for another month, please keep the input flowing, especially information on your groups upcoming Xmas activities.

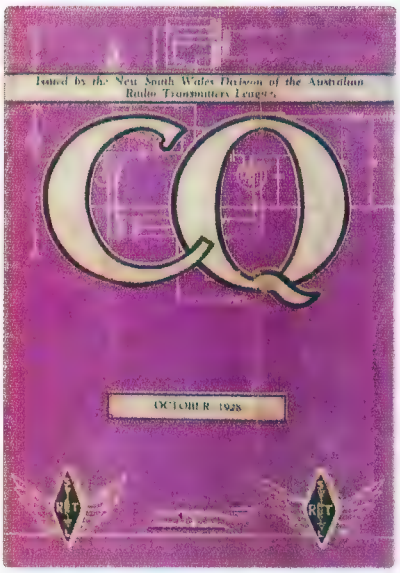
Plan ahead

24 - 25 November
Spring VHF/UHF Field Day

January 2013
Ross Hull Memorial VHF Contest

Hamads

WANTED - NATIONAL



Copies of *Australian CQ* magazine.

The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email *vk3rv@wia.org.au* or c/o the National Office in Bayswater if you can help us locate this important part of our history.

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PCB only, $10.00 plus postage. Order on line from VK5JST, *www.users.on.net/~endsodds*

WANTED – SA

Front protection cover for a WW2 3B/3BZ receiver.

Contact Malcolm Haskard VK5BA, email mhaskard@chariot.net.au or on 08 8280 7192.

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Gavin VK3GH on **5968 8482** or Steve VK3TSR on **0418 103 487**

Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the *AR* section of the WIA website, at *http://www.wia.org.au/members/armag/contributing/*

Email the Editor: *editor@wia.org.au*

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- Submit by **email (MUCH PREFERRED)** or if written and mailed please print carefully and clearly, use upper AND lower case.
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- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
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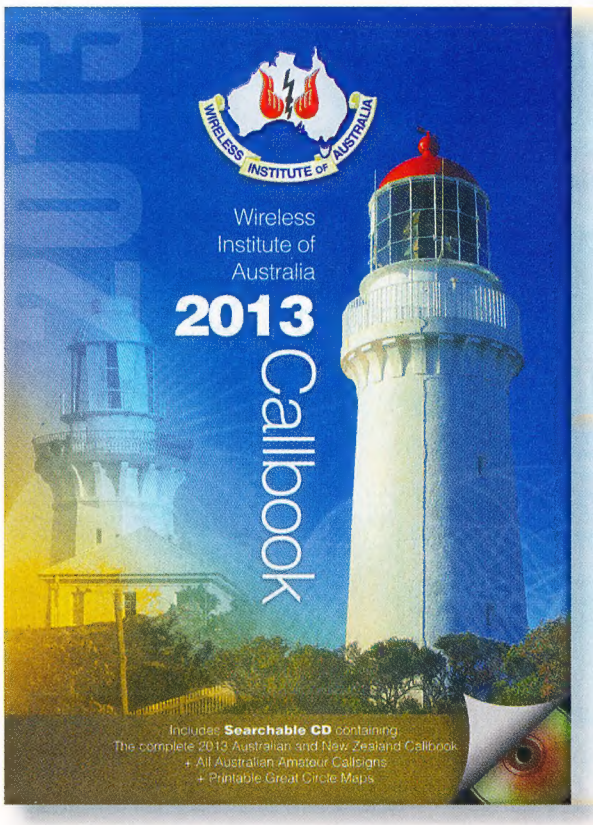

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Michael Owen VK3KI SK

Michael operating on the National Field Day in 1961 on Mt Blackwood with Michael Osborne VK3ZCZ. (Photographer not known.)

Michael presenting Tony Hutchison VK5ZAI with the Chris Jones Award.

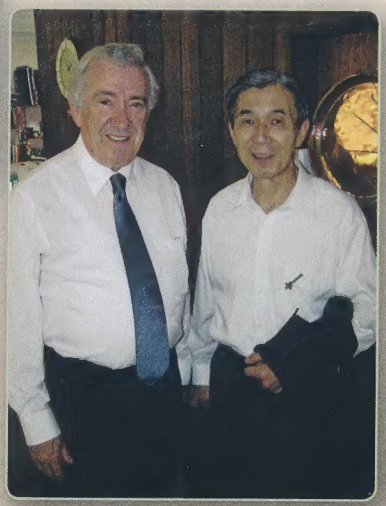
Michael with Dick Smith VK2DIK and Geoff Atkinson VK3AFA at the Bowylie Flying Club.

Michael and Peter Young VK3MV sign up new members at the 2007 Kyneton Hamfest.

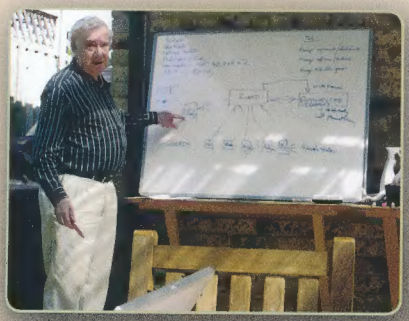
Michael with Chris Chapman, Chairman of the ACMA, on the day of the signing of the ACMA WIA outsource agreement.

Michael shakes hands with Takashi Aoki during the presentation of D-STAR repeaters from Icom to the WIA.

At the NZART Conference held in Napier in 1978. From the left: ZL1HV President NZART, VK3KI, VK3ADW and ZL2AZ, Past President NZART and Director of IARU R3. (Photographer not known.)



Michael with Shizuo Endo JE1MUI.



Michael outlining ideas during a Board meeting held at the home of the late Chris Jones VK2ZDD.

Michael presenting Fred Swainston VK3DAC with his Ron Wilkinson Award.

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